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THE DEVELOPMENT OF A RECEPTIVE COMMUNICATION SCALE FOR DEAF CHILDREN. FINAL REPORT.

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THE ILLINOIS COMMUNICATION SCALE WAS DEVELOPED ON 16 MM COLOR FILM TO ASSESS THE RECEPTIVE COMMUNICATION ABILITIES OF DEAF CHILDREN BETWEEN 6 AND 14 YEARS. FORMS WERE CONSTRUCTED TO MEASURE (1) AUDITORY RECEPTION, (2) LIPREADING AND LISTENING, (3) LIPREADING ONLY, (4) FINGERSPELLING, AND (5) LANGUAGE OF SIGNS. EACH FORM HAD 5 SUBPARTS (1) VOCABULARY, (2) SIMPLE SENTENCES, (3) STORIES, (4) NARRATIONS, AND (5) RANDOM SENTENCES AND PHRASES. THE SCALE (WITH THE EXCEPTION OF THE FIRST FORM WHICH COULD NOT BE ADMINISTERED AS A GROUP TEST) WAS GIVEN TO 417 SUBJECTS. RELATIONSHIPS BETWEEN TEST RESULTS AND AGE, NUMBER OF YEARS IN SCHOOL, IQ, ACHIEVEMENT TEST SCORES, PARAGRAPH MEANING SCORES, DEAFNESS OF RELATIVES, STATUS OF HEARING LOSS, AND SCHOOL ENTRANCE AGE WERE INVESTIGATED. TEST RESULTS WERE COMPARED WITH TEACHER RATINGS AS A CRITERION MEASURE. TWO VARIMAX ROTATED FACTOR MATRICES WERE OBTAINED FROM EACH OF THE TWO SCHOOLS IN THE STUDY. ONE USED THE SUBTESTS AS FACTORS. THE OTHER USED THE TOTAL SCORE FOR THE ENTIRE FORM AS A FACTOR. RESULTS INDICATED THAT THE TWO LIPREADING FORMS WERE VALID USING THE CRITERION OF TEACHERS' RATINGS. HOWEVER, THE "LIPREADING ONLY" FORM WAS NOT FOUND TO BE SIGNIFICANTLY DIFFERENT FROM THE "LIPREADING AND LISTENING" FORM. THE AUTHOR RECOMMENDED ELIMINATING THE FORMER. PERFORMANCE ON THE FINGERSPELLING AND LANGUAGE OF SIGNS FORMS WAS MORE CLOSELY RELATED TO AGE, YEARS IN SCHOOL, AND ACHIEVEMENT TEST SCORES THAN TO TEACHER RATINGS. IT WAS SUGGESTED THAT BETTER CRITERIA FOR RATING ABILITY IN FINGERSPELLING AND THE LANGUAGE OF SIGNS BE FOUND SINCE TEACHER RATINGS OF THESE ITEMS WERE MORE HIGHLY CORRELATED WITH AGE, YEARS IN SCHOOL, AND DEAFNESS OF RELATIVES THAN WITH PERFORMANCE ON THESE ITEMS. ANALYSIS OF DATA INDICATED THAT SUBPARTS ONE, TWO, AND FIVE WERE EVALUATING THE SAME FACTOR AND PARTS THREE AND FOUR ANOTHER. IT WAS RECOMMENDED THAT PARTS ONE, TWO, AND FIVE BE COMBINED AND AND THAT EITHER PART THREE OR PART FOUR BE ELIMINATED. NO RELIABILITY INFORMATION IS AVAILABLE AS YET. FIGURES, TABLES, AND TEST ITEMS ARE INCLUDED IN THE APPENDIXES. THERE ARE 6 REFERENCES. (HK)

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THE DEVELOPMENT OF A RECEPTIVE COMMUNICATION SCALE FOR DEAF CHILDREN

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Director: Frank B. Withrow, Ph.D.

November 30, 1966

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Illinois School for the Deaf
Jacksonville, Illinois

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INTRODUCTION

The Problem

The educator and the clinician both need a tool for assessing the deaf child's ability to receive communication. An assessment of these abilities would enable them to more effectively place him in the appropriate educational unit and to provide the proper diagnostic care. The research worker needs a tool for assessing progress in various methods of instruction. It is critical for him to be able to evaluate the child's ability to communicate.

The deaf child may use speech and lipreading, fingerspelling, or the language of signs to communicate his ideas. In addition to these more formal modes, he may also use pantomime, gestures, or other manipulative means of communication and, in some instances, he may resort to writing and reading. He may use a combination of any or all of these modes. He may be equally proficient in all, or he may be significantly superior in one.

Such an assessment then of these communicating abilities would be a complex undertaking since the mode of communication must be considered in relation to the language development of the child. This complexity exists because most deaf children use multiple modes of communication.

Objectives

The objective of the proposed Illinois Communication Scale is to measure the child's receptive communication skills in each of the formal methods of communication. The specific objectives of this study were to...

(1) Develop a receptive communication scale for the use of deaf children. The scale should assess the child's ability to lipread and listen; his ability to lipread without sound; his ability to receive fingerspelling, and his ability to receive the language of signs.

(2) Validate this scale against the teacher's estimate of the pupil's receptive communication skills.

(3) Investigate the relationship between receptive communication abilities and factors such as age, number of years in school, I.Q., achievement test scores, paragraph meaning scores, deafness of relatives, status of hearing loss, and the age started to school.

Related Research

The concept of a film test of receptive communication abilities is not a new one. Investigators such as Jean Utley[6] have previously used films for test purposes. The Utley test of 1949 is perhaps the best known of these tests. It was constructed primarily for use with adults; however, it has been used at times with children. The Utley test is composed of three sections...

1. Thirty-six words from Thorndike Teacher's Word List.

2. Thirty-one sentences composed of idiomatic phrases and common expressions.

3. Several dramatized conversational interludes, each followed by five questions about the conversational content.

The Utley test has been analyzed by numerous investigators. Postore's analysis[3] of several tests of lipreading proficiency (Morkovin and Moore, Rosenbaum, Keister, and the Deshon General Hospital) pointed out that, in formulating a test, the following criteria should be used:

(a) Conditions should be kept as nearly normal and constant as possible. (The use of colored movie film best fits this qualification.)

(b) At least two speakers should be used...one male and one female.

(c) A minimum of two equivalent forms of the same test should be made available.

(d) A wide range of difficulty should be incorporated.

(e) There should be ease of discrimination and ease of scoring.

An analysis of the Utley test by DeCarlo et al[2] has suggested that sentences were judged to be statistically better indices of the lipreading ability than either isolated words or the questions following the dramatized stories.

Previous film tests have been concerned with assessing lipreading abilities. However, Quigley and Frisina[4] used the sentence portion of the Utley test to assess the ability of students to receive

fingerspelling. They filmed "Form A" as a speechreading test, and "Form B" as a test of reading fingerspelling. They used a single speaker and a single speller in their tests. Also, they used black and white rather than colored film.

Craig[1] has recently developed a test for lipreading, using words and sentences. This test is on 16mm, color, sound film. Responses are multiple choice, and the subject is instructed to circle the correct picture on the answer sheet. Previous research has not attempted to develop equivalent forms of receptive tests for lipreading, fingerspelling and the language of signs.

METHOD

Stimuli

A vocabulary list was collected from such sources as the Thorndike-Lorge Word List[5] and the CID Language Outline. A number of sentences were constructed from these lists. The Word List and sentences were then given to fifty teachers of the deaf to rate on a five-point scale of difficulty for their pupils. The rating ranged from "I would always expect the pupils in my class to be able to understand and/or know this sentence" to "None of the pupils in my class would understand or know this sentence."

This rated material was used as a pool for the construction of the items that appeared on the scale. Fifty words were selected for the vocabulary part (Part I) of the scale. Fifty sentences were selected for use in Part II; and, fifty random sentences and phrases were selected for Part V of the scale. All of the material selected had been rated by the teachers as very likely to be known by their children as far as language was concerned.

It was then assumed that language would be a minor factor in scores and that the mode of communication would be the major variable tested.

Parts III and IV were questions about stories presented to the pupils. There were ten questions on each form of the test. These questions were carefully selected so that they would be comparable from form to form. A comparable story was filmed for Part III of each form and ten questions were asked about each. These stories had a little girl finding a container such as a purse, suitcase, wastebasket, or box. The subsequent action, to elicit responses to multiple choices, was about the child playing with the items from the containers. Each story used the following question forms:

How many _____?
Where was _____?
Where was _____?
What happened when _____?
What was _____?
Who _____?
What did _____ do?
What color was _____?
How many _____?
Did _____?

Part IV of each sub-test was a story where approximately half of the information was contained in narration (refer to Appendix B), and the rest in cartoon-type illustrations. Again, ten questions were asked about the story. The same question forms were used on each form of the scale.

Did _____?
When _____?
When _____?
What color _____?
What was _____ name?
Who _____?
Who _____?
How many _____?
Where _____?
What did _____ do?

A certain number of nonsense items were included in each of the forms of the test. This enabled the test to maintain a certain interest level for the children. The use of nonsense sentences helped equate the kinds of material from one form to another. An example may be found in Part II of the task...a tree in a bathtub. This did maintain a high level of interest in the children, and it did tend to assess the receptive communication ability in which we were interested, rather than the language ability of the child.

Responses

Each child had a score sheet (refer to Appendix C) on which to record his responses. Parts I and II required that the pupil circle the correct picture. This basically was a pictorial multiple-choice response with four pictures to choose from. Parts III and IV were answers to questions. Again, the response was multiple-choice, with four answers given and a blank choice if the pupil wanted to give another possible answer. Part V was a multiple-choice response where the pupil simply chose the phrase or sentence said in the stimuli.

Parts I and II could be answered by children who did not read whereas Parts III, IV, and V required that the pupil be able to read.

Test Forms

Five forms of the scale were constructed. Each form was designed to assess one mode of receptive communication:

Form A: Auditory reception only
Form B: Lipreading and listening

Form C: Lipreading without sound.
Form D: Fingerspelling
Form E: Language of signs.

Five sub-parts of each form of the receptive communication scale were established:

PART I
consisted of ten simple words. Consideration was given to the phonemic and/or visual structure of the words with respect to the lipreadibility or the ability to read them in fingerspelling, or the ability to read them in the language of signs.

Comparable words were used in each of the different forms. Attention was given to assimilating the information to go into the test to assure that there would be words and vocabulary comparable in difficulty across the modes of communication. Words that were homophonous in nature were used in the lipreading section; and, words that might have a possibility of confusion with respect to finger configurations were used in the fingerspelling section. An attempt was made to do the same thing in terms of items used in the form for the language of signs.

PART II
consisted of sentences that could be graphically presented. Simple sentence forms were used in this section of the test. A carrier phrase of "Circle the_____" was used for each of the stimulus.

PART III
consisted of a story dramatized by a young girl. Each of the stories had a girl finding some type of container (purse, suitcase, wastebasket, etc.) and doing something with the items contained therein. No verbal contact was used in the presentation of this visual action experience for the child. This constituted the stimuli for the sub-part of the test. No carrier phrase was used. Ten questions were asked about the activities portrayed by the girl in each sequence.

PART IV
consisted of a narrated story supplemented by three cartoon-type pictures interspersed in the narration. It was thought by the test designer that about half of the information was carried in the narration and half in the cartoon pictures. No carrier phrase was used. Ten questions were asked about these stories.

PART V
consisted of random phrases and sentences with no visual clues as to the sentence or phrase.

Procedure

All stimuli were presented via 16mm motion picture projector. The test items were presented on the screen. A still framer stopped the projector with the test stimuli on the screen. In Part I, the test items consisted of four pictures...the child had a rough sketch of these four pictures on his score sheet (Refer to Appendix C), and was instructed to circle the one indicated by the tester. The same procedure was used for Part II of the test...again, pictures roughly matching the pictures held on the still frame on the screen were sketched on his score sheet. In these two parts of the test, the child was allowed to continue to view the test material on the screen at the same time that he equated them to the test material on the score sheet. The score sheets were purposely not presented at a high level of artistic sophistication since the pictures were before the child on the screen. The lined drawings were sufficient for the child to make his responses.

Parts III, IV, and V required that the child be able to read. All of these were given multiple-choice answers.

Form B was given to normally-hearing children to assess the memory factor in the test. It was found that third grade children (or children at approximately 9-1/2 years of age) were able to do this test with about 95% accuracy. It was, therefore, considered that the memory task involved was not one out of range of the nine year old deaf child.

Subjects

The subjects for this experiment were all of the children between the ages of six and fourteen at the Illinois School for the Deaf and the Indiana School for the Deaf. This gave us approximately two hundred students at each institution. Data such as I.Q., achievement test scores, reading test scores, etc. were also available from both of these institutions. The Missouri School for the Deaf was included; however, these children were eliminated from the final statistical treatment since the data with respect to psychologicals, hearing tests, etc. was not considered to be adequate for our particular purposes.

Rating Scales

Ratings were obtained on each subject as a criteria for lip-reading, fingerspelling, and language of signs abilities. Three teachers, who had knowledge of each subject's abilities, were asked

to rate the subject for lipreading, fingerspelling and the use of the language of signs (Refer to Appendix A). The rating scale was a five-point scale. The three ratings were averaged together to provide a lipreading rating, a fingerspelling rating, and a language of signs rating.

School Records

The following information was obtained from the school records:

1. Age
2. Years in school
3. I.Q.
4. Achievement test scores
5. Paragraph meaning scores
6. Hearing loss: Average loss for the better ear at 500, 1000 and 2000 cps. (If no response was made at a given frequency, then the limits of the audiometer for that frequency were used to calculate the average.)
7. Shape of the audiogram: The shape of the audiometric curve was coded on a 6-point basis:
   (1) Rising
   (2) Flat
   (3) No response beyond 500 cps
   (4) U-shaped
   (5) Falling greater than 12 db per octave
   (6) Falling less than 12 db per octabe
8. Age started to school
9. Deafness of immediate relatives (mother, father, and siblings.)

RESULTS

All forms of the Illinois Communication Scale, with the exception of Form A, were given to the pupils between the ages of 5.7 and 14.6 years at the Illinois School for the Deaf and the Indiana School for the Deaf. Form A was excluded for the purposes of this study since it quickly became apparent that it could not be administered as a group test. It has, however, been used as an individual test through a speech audiometer.

Table I is a rank order of correct responses for each item on the scale. A comparison of these responses indicate that items in Form E were somewhat easier for the subjects than the other forms. This is most apparent in Parts I and II. Although there appears to be a rather wide range of difficulty within each sub-test, the ranges between sub-tests appear to be comparable.

Figure 1 illustrates the responses for Part I (Vocabulary) as a function of age. Obviously, the language of signs is easier for the pupils throughout the age range studied. The two lipreading curves are comparable to one another. The fingerspelling curve is most interesting in that it basically starts lower than lipreading and continues lower until age ten where it crosses the lipreading score and accelerates very rapidly thereafter with age. It is also interesting to note that the language of sings scores are reaching a maximum at age ten.

Figure 2 which illustrates the responses for Part II (Sentences) has comparable curves to the vocabulary scores. Again, the language of signs is superior to the other modes of communication. The fingerspelling curve again crosses the lipreading curve at age ten.

Figures 3, 4, and 5 illustrate the story narration and random sentence parts of the scale. These figures illustrate the trend for the language of signs to be the superior mode of communication, with the lipreading only part being inferior. However, there is possibly no real significance between the performance in communicating with this more difficult material.

Varimax Rotated Factor Matrix

The two schools used in this study were examined separately. Two factor matrices were obtained on each school. One used only the sub-tests as factors, while the second used the total score for the entire form as a factor.

TABLE 1 - RANK ORDER FOR THE PERCENT CORRECT OF EACH ITEM IN EACH SUBPART

Part 1 Vocabulary

Forms	B	C	D	E
	82	71	77	99
	74	67	68	96
	73	61	68	95
	66	58	67	94
	58	47	66	92
	54	47	65	91
	48	45	60	91
	46	45	59	90
	42	40	58	90
	33	39	55	71

Part 2 Sentences

Forms	B	C	D	E
	73	70	70	90
	70	58	68	90
	59	57	64	89
	58	56	61	89
	57	50	60	79
	55	48	58	75
	50	47	58	75
	48	46	57	74
	45	46	55	74
	42	43	36	74

Part 3 Stories

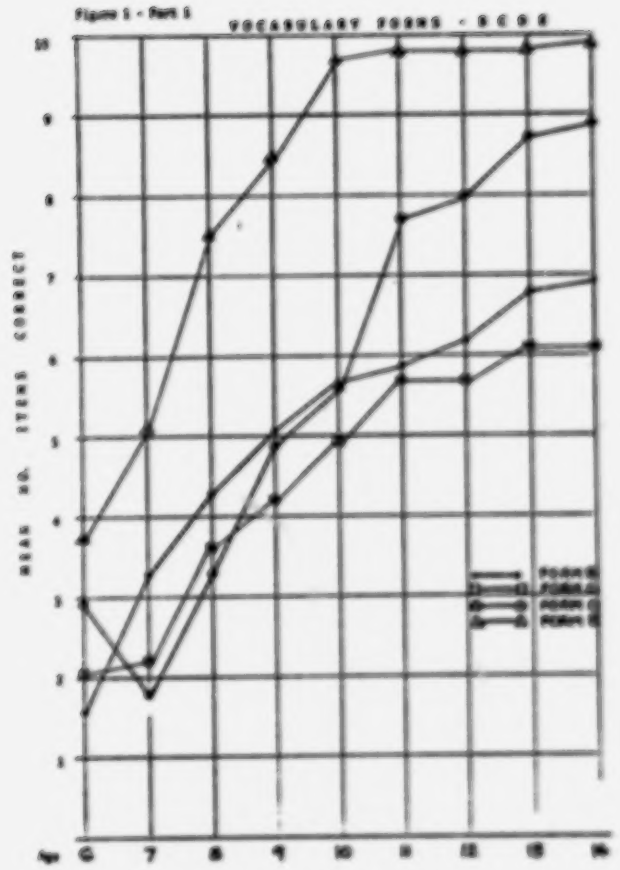
Forms	B	C	D	E
	67	55	67	65
	59	52	52	58
	55	48	49	57
	48	47	47	54
	41	46	44	47
	41	42	42	42
	36	42	42	38
	36	34	39	36
	36	33	33	35
	25	32	25	30

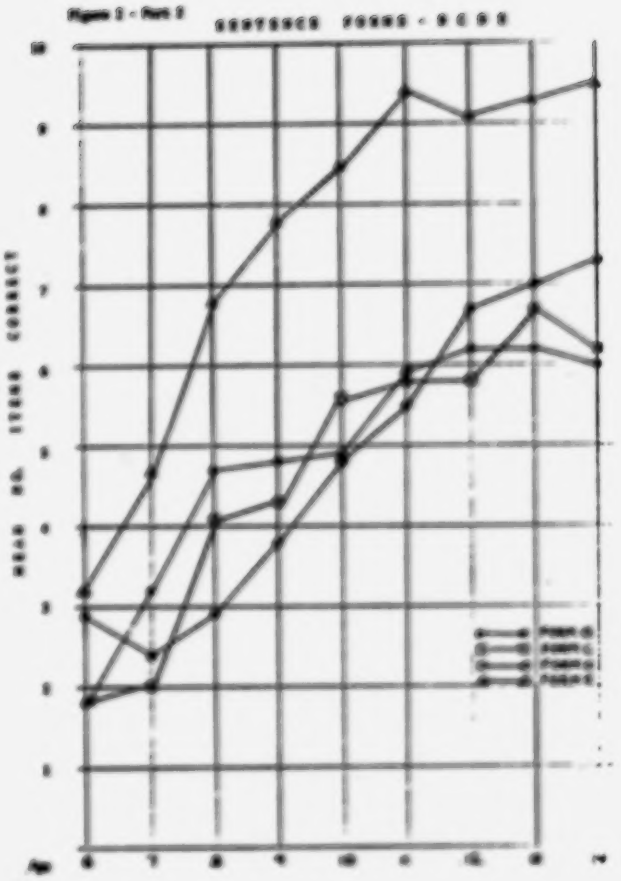
Part 4 Narrations

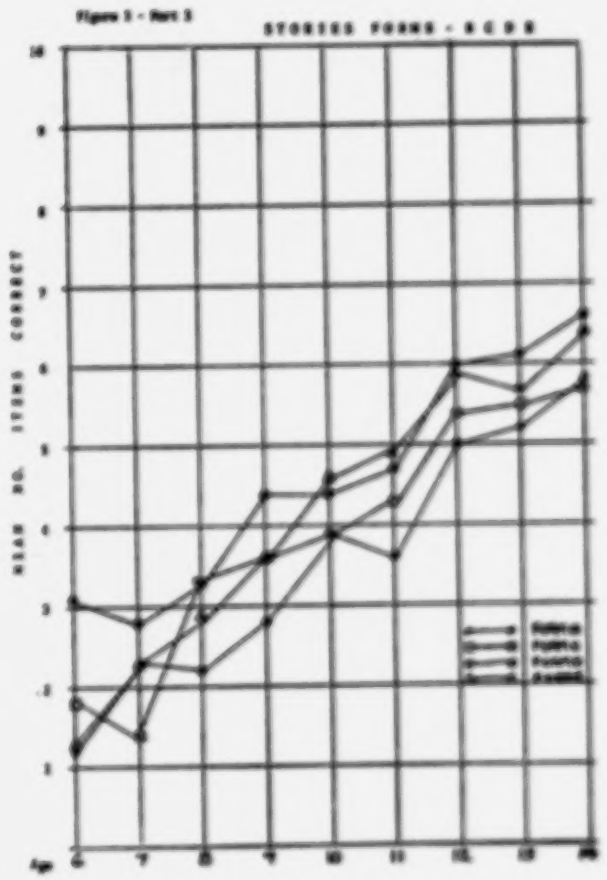
Forms	B	C	D	E
	63	53	68	71
	55	51	65	62
	52	47	62	57
	46	45	52	54
	44	44	47	47
	36	39	38	46
	36	38	34	38
	36	35	29	34
	28	35	29	33
	24	11	27	18

Part 5 Random Sentences

Forms	B	C	D	E
	82	66	76	79
	74	63	75	73
	67	63	72	72
	65	61	72	72
	64	58	70	72
	63	55	64	70
	59	54	64	69
	59	50	63	69
	55	47	61	67
	53	38	47	66







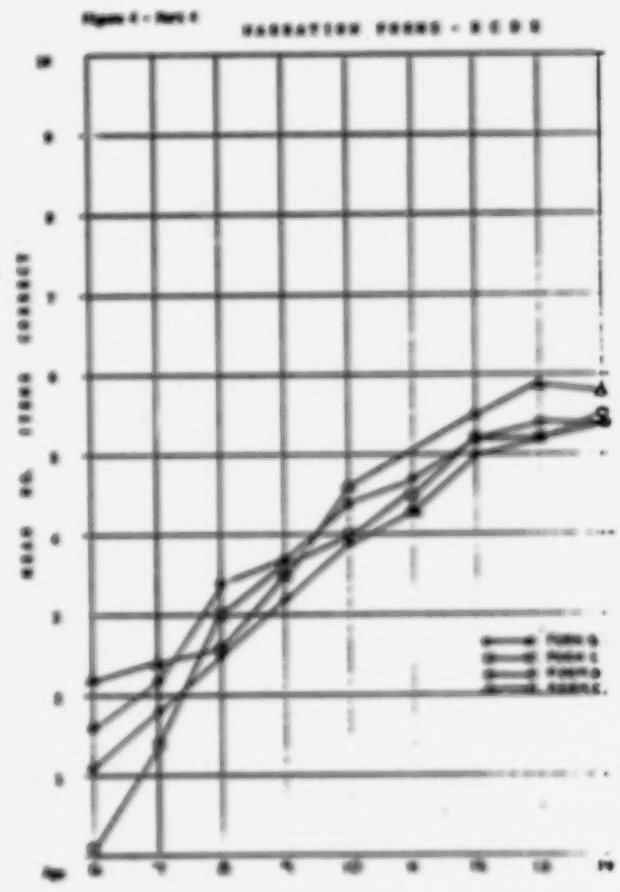


Figure 5 - Part 5

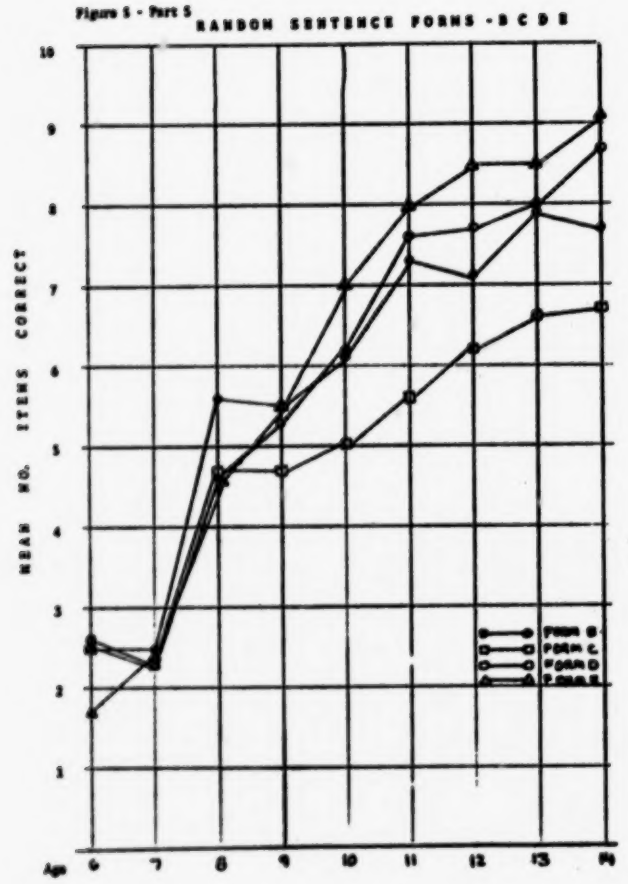


Table 2 is the matrix for the subtests for the Illinois School. The first factor in this matrix could be considered lipreading plus other minor factors. Factor 2 is age, achievement test score and paragraph meaning. The third factor appears to be age. The fourth factor is I.Q. and the fifth factor is hearing loss.

If we look at Table 3 which uses only the total scores as factors we find that age and years in school appear to be the first factor. The second factor is I.Q. and the third factor is lipreading.

Table 4 is the matrix for the Indiana School using the subtests as factors. The first factor here appears to be narrated material. The second factor is lipreading. The third factor is fingerspelling and the language of signs. The fourth factor is the rating of fingerspelling and the language of signs. The fifth factor is hearing loss. The sixth factor is I.Q. and the seventh factor is age started to school.

Table 5 represents the matrix that uses the total scores as factors. The first factor in this matrix is age and years in school. The second factor is lipreading. The third is deafness of relatives. The fourth is hearing loss and the fifth is age started to school.

Table 2

VARIMAX ROTATED FACTOR MATRIX **Illinois N-211**

	Age	.1979	.6146	.6249	−.2290	.0237	−.0581
	Years in school	.1706	.6342	.6007	.1657	.0055	−.0841
Look & Listen	Vocabulary	.7668	.1875	.3305	−.0471	−.1873	−.0314
	Sentence	.8341	.1437	.2465	−.0583	−.1911	−.0982
	Story	.5744	.4259	.3035	−.0350	.0403	.2833
	Narration	.5934	.4344	.3159	−.0918	−.0289	.2205
	Random	.6935	.2237	.4693	.1333	−.1615	−.0710
Lip Reading	Vocabulary	.7986	.2532	.2713	.0849	−.0033	−.0451
	Sentence	.8150	.1896	.3081	.0400	−.1097	−.0778
	Story	.5109	.4018	.4024	.0531	−.0355	.1144
	Narration	.4406	.3633	.5692	.0483	−.0326	.0707
	Random	.7971	.2405	.2694	.1393	−.0174	−.0555
Finger Spelling	Vocabulary	.2886	.5042	.5927	.1394	.0642	.1355
	Sentence	.2994	.5390	.4873	.1155	.1158	.1597
	Story	.4526	.4706	.3056	.1883	.1291	.2615
	Narration	.5040	.3569	.3886	.2270	−.0144	.1979
	Random	.2932	.3904	.6753	.1007	.0950	.0827
Language of Signs	Vocabulary	.2311	.1068	.8590	−.0054	−.0285	.0519
	Sentence	.2626	.1982	.8172	.0893	.0139	.1173
	Story	.5201	.4570	.3122	.0714	.1211	.3491
	Narration	.5551	.4658	.2789	.1049	.1522	.3318
	Random	.3397	.4009	.7496	.1089	.0415	.0850
	I Q	.2709	.0576	.1532	.7803	.0077	.2224
Achievement test		.3765	.7979	.1665	.1344	.0993	.0592
Paragraph Meaning		.3840	.7989	.1643	.1211	.1014	.0533
Hearing Loss		−.2201	−.0388	.1221	.2500	.7537	.0036
Shape of Audiogram		−.1452	−.0017	−.0463	−.2242	.7094	−.1275
Age Started School		.0095	−.1024	−.0282	−.8768	.0117	.0908
Deaf Relatives		−.1168	.0371	.0944	.0509	−.1386	.8251
Rating of Lip Reading		.7488	−.1052	−.1321	.1976	−.1655	.0386
Rating of Finger Spelling		.0888	.8153	.2550	.0079	−.1700	−.0070
Rating of Sign Language		.0065	.8304	.2398	−.0186	−.1638	−.0047
% of Variance		31	25	24	8	6	6

Table 3

VARIMAX ROTATED FACTOR MATRIX			Illinois N-211	
Age	.8911	—.2141	.0560	—.0691
Years in School	.8704	.1603	.0307	—.0860
Look & Listen	.6860	.0631	.5774	.2381
Lip Reading	.7002	.1328	.5928	.1560
Finger Spelling	.8418	.2153	.2520	.0138
Language of Signs	.8158	.1843	.2880	.0126
I Q	.1813	.8227	.2030	.0863
Achievement Test Score	.8424	.1577	.0973	.0053
Paragraph Meaning	.8495	.1410	.1110	.0022
Hearing Loss	.0015	.3050	—.1477	—.7489
Shape of Audiogram	—.0275	—.1654	—.1278	—.6923
Age Started to School	—.0562	—.8330	.0125	.0749
Deaf Relatives	.1102	.3191	—.3999	.3731
Rating on Lip Reading	.0434	.1986	.7337	.3465
Rating on Finger Spelling	.8080	.0128	—.2531	.1898
Rating on Language of Signs	.7878	—.0151	—.3232	.1676
% of Variance	56	16	15	12

Table 4

VARIMAX ROTATED FACTOR MATRIX **Ind. N-206**

	AGE	.2692	.0277	**.8711**	.0714	−.0374	−.0206	.2066
	Years in School	.2680	.0237	**.8507**	.0825	.0265	.0339	−.2903
Look & Listen	Vocabulary	.3941	**.7174**	.1357	.0312	−.1115	.1636	.0599
	Sentence	.3161	**.7722**	.0294	.0767	−.1182	.1114	.0425
	Story	**.6917**	.3385	.2670	.2562	−.0829	.0193	−.0486
	Narration	**.7245**	.3918	.1688	.1337	−.0855	.0425	.0200
	Random	.1690	**.8329**	.2819	.1076	−.0685	.0900	.0093
Lip Reading	Vocabulary	.3118	**.7458**	.1960	.0906	−.0073	.0464	.0704
	Sentence	.2292	**.7900**	.1607	.1296	−.0926	.0551	.0972
	Story	**.7792**	.2156	.1447	.1632	.0322	.0243	−.0012
	Narration	**.5353**	.2445	.3069	−.1089	.1215	.2665	.0571
	Random	.3278	**.7664**	.1940	.1438	−.0338	.0655	−.1310
Finger Spelling	Vocabulary	.2522	.4169	**.5320**	.3485	.0256	.1540	−.0270
	Sentence	.3961	.2766	.4457	**.5003**	−.0193	.0572	−.0339
	Story	**.7321**	.2763	.2173	.2253	−.0407	.0170	−.0362
	Narration	**.7218**	.2847	.1351	.1450	−.0331	.2794	.0143
	Random	**.4618**	.2960	.4406	.2244	.1246	.1986	−.0101
Language of Signs	Vocabulary	.0953	.1513	**.5939**	.0613	.0144	.4235	.3893
	Sentence	.1732	.2768	**.6302**	.0602	−.0443	.4839	.2140
	Story	**.6574**	.3578	.2669	.2304	.0292	.1196	.0110
	Narration	**.6232**	.3691	.2351	.3922	−.0269	.0421	.0981
	Random	.3439	.3673	**.5318**	.3080	−.0118	.2606	.1599
	I. Q	.2143	.1597	.2314	−.0119	−.0759	**.7344**	−.1528
	Achievement Test	.4622	.2388	**.5496**	.3263	−.0528	.1883	.0639
	Paragraph Meaning	.4436	.2663	**.5249**	.4279	.0976	−.0642	−.1599
	Hearing Loss	−.0468	−.3383	.1073	.0160	**.9062**	−.0352	−.1508
	Shape of Audiogram	.0217	−.0344	−.0712	−.0186	**.9085**	−.0330	.0198
	Age Started to School	.0071	.0020	.0704	−.0325	−.0935	−.0818	**.9348**
	Deaf Relatives	.0538	.0246	−.0857	**.6782**	−.0121	.4938	−.0291
	Rating of Lip Reading	.2699	**.6535**	−.2679	.2478	−.1600	.0019	−.1705
	Rating of Finger Spelling	.3295	.1732	.1512	**.8192**	.0057	−.0846	−.0070
	Rating of Language of Signs	.2406	.1565	.2481	**.8323**	−.0163	−.0672	.0044
	% of Variance	24	24	19	13	7	7	6

Table 5

VARIMAX ROTATED FACTOR MATRIX			Ind. N-206		
Age	.9057	−.0198	.0916	−.0141	.2957
Years in School	.8682	−.0225	.1367	.0696	−.2004
Look & Listen	.4058	.8366	.1611	−.1399	.0335
Lip Reading	.4274	.8658	.1433	−.0602	.0281
Finger Spelling	.8329	.5675	.3426	.0089	−.0078
Language of Signs	.6944	.5210	.2766	−.0535	.1119
I Q	.4703	.2812	−.0704	−.1921	−.3515
Achievement Test Score	.7097	.3793	.3212	−.0423	.0636
Paragraph Meaning	.6392	.3678	.4216	.1544	−.0376
Hearing Loss	.0693	−.3000	.0053	.8279	−.1447
Shape of Audiogram	−.0478	.0344	−.0511	.8926	.0114
Age Started to School	.0623	−.0060	−.0800	−.1386	.8247
Deaf Relatives	.0731	.0134	.6881	−.1389	−.2128
Rating on Lip Reading	−.1922	.8214	.2193	−.1444	−.1440
Rating on Finger Spelling	.2079	.3044	.8514	.0635	.0751
Rating on Language of Signs	.2691	.3285	.9014	.0306	.0867
% of Variance	32	25	20	12	9

DISCUSSION AND CONCLUSIONS

The results of this study indicate that the population of the Illinois School for the Deaf and the Indiana School for the Deaf are two slightly different populations. There was a clear indication in both schools that the lipreading forms (B and C) were valid tests using the teacher's rating as the criteria.

The performance on the fingerspelling and language of signs forms (D and E) seemed to be more closely related to such factors as age, years in school, and achievement test scores. It is interesting to note that at the Indiana School the rating of fingerspelling and language of signs were most closely related to deafness of relatives whereas in the Illinois School these appeared to be most highly correlated with age and years in school.

In the matrix for the Indiana School, using the sub-tests as factors, an interesting first factor was found. This factor appeared to be connected materials, i.e. the story and narration parts of the scale. In this population these sub-parts seemed to transcend the modes of communication and have a high correlation one to the other. This same factor did not appear in the Illinois group. It is interesting, however, that most of these same variables were found for this group in the lipreading-plus factor.

In general, we concluded that the two lipreading forms (B and C) assessed lipreading ability based upon our criteria of teacher ratings. Secondly, we probably assessed two aspects of lipreading rather than the five outlined in the sub-parts of the scale. Vocabulary, simple sentences and random sentences seemed to assess essentially the same factor. The story and narration parts of the scale also assessed another factor.

In view of our findings, we concluded that the teacher rating of fingerspelling and the language of signs is more highly correlated with age, years in school, and deafness of relatives rather than with performances on these forms. Another reason for this conclusion is that, because of a lack of skill in evaluating these areas, teachers cannot adequately rate them. We assumed this to be the case since many teachers commented on the fact that these ratings were more difficult than for lipreading.

Recommendations

Reliability studies, at this writing, have not been done on this scale. Therefore, it is our recommendation that a test (re-test) study be done to establish the scale's reliability.

RECOMMENDATIONS

At this writing reliability studies have not been done with this scale. Therefore, it is our recommendation that a reliability test (retest) study) be done to establish the scale's reliability.

Since there were no significant differences in forms B and C it is recommended that form C be eliminated.

It is recommended that the scale is ready at this time to be further refined by assimulating parts 1, 2, and 5 into one 20 item subpart and that either parts 3 or 4 be used without the other.

It is also recommended that the items in this scale could be used to establish two separate comparable scales with the above-mentioned revision in subparts.

It is our finding that the Illinois Communication Scale in its present form can be used as a crude clinical tool which provides a profile as to the most effective means of communication received by the child. It does not at this time in its present form lend itself to complete standardization.

SUMMARY

A receptive communication scale was developed on 16mm colored film to assess the receptive communication abilities of deaf children between the ages of six to fourteen on lipreading and listening, lipreading only, fingerspelling, and the language of signs. The vocabulary and language used in the scale were rated by teachers with respect to the likelihood of it being understood by deaf children. From this pool of rated material five sub-parts (1) vocabulary, (2) simple sentences, (3) stories, (4) narration, and (5) random sentences and phrases were developed for each form. The sub-parts were assumed to form a progression of difficulty.

The entire scale was given to the six to fourteen year old populations of the Illinois School for the Deaf and the Indiana School for the Deaf. This provided a sample of 417 subjects: 18 six year olds, 18 seven year olds, 37 eight year olds, 51 nine year olds, 43 ten year olds, 57 eleven year olds, 58 twelve year olds, 67 thirteen year olds, and 68 fourteen year olds. There were 206 subjects from Indiana and 211 from Illinois.

An item analysis of the scores was performed on 100 randomly selected subjects. There were ten items on each part of the scale or 50 items on each form. The score was written in terms of the percent of correct responses. There was a progression in the percentage of increased responses over age. On the lipreading and listening, form B, the range was 16% at age six to 63% at age fourteen. On the lipreading only, form C, the range was from 17% at age six to 61% at age fourteen. On the fingerspelling, form D, the range was from 26% at age six to 74% at age fourteen and on the language of signs, form E, the range was from 24% to 81% over these ages.

Teachers at each school were asked to rate the subjects on lipreading, fingerspelling and ability in receiving the language of signs. These ratings were used as a validity criteria.

Additional information such as I.Q., achievement test scores, hearing loss and other items were obtained from school records.

Each school population was statistically treated with a

Two separate varimax rotated factor matrices were obtained on the data for each school. One used sub-parts of each form as variables, and the other used the total score for each form as a variable.

These results indicate that the criterion for validity of lipreading was acceptable. The criteria for fingerspelling and the language of signs were more closely correlated with age and deafness of relatives than any other factor.

These factor matrices also indicated that the Parts I, II, and V were probably assessing the same factor and Parts III and IV were assessing another factor.

No reliability information has been collected as yet on this scale.

The scale in its present status should be refined and re-grouped to provide two completely comparable scales. Form C should be eliminated since lipreading only is not significantly different from lipreading and listening. Parts I, II, and V should be combined into a single part and Parts III and IV can be used interchangeably. These revisions would reduce the time required to administer the scale and yield essentially the same information as the full scale.

Consideration should be given to finding a better criteria for rating the ability in the use of fingerspelling and the language of signs. The rating scale used in this study was less effective than the one used in the area of lipreading.

The scale in its present form can be used as a gross indication of receptive communication abilities of deaf children and will provide a profile across lipreading, fingerspelling, and the language of signs. It does not provide a refined measure within each form at the present time.

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LIPREADING

Name_____

5	4	3	2	1
Excellent	Very Good	Average	Fair	Poor

Instructions

Excellent - Understands most speakers. Adapts quickly to new speakers. Seldom must ask speaker to repeat.

Very Good - Understands familiar speakers. In time adapts to new speakers. Occasionally asks for speaker to repeat.

Average --- Understands teachers, houseparents and parents. New speakers present some problem. Does miss some of what is said.

Fair ------ Teachers, houseparents and parents must modify speech for understanding. New speakers present real problems. Gains many clues from situations and lipreading in order to get the idea.

Poor ------ Great difficulty in understanding speaker. Relies upon others in peer group to translate for him. Always defers to signs, fingerspelling or writing to be sure of the communication.

Rater_____

FINGERSPELLING

Name_____

5	4	3	2	1
Excellent	Very Good	Average	Fair	Poor

Instructions

Excellent - Understands most fingerspellers. Adapts quickly to new fingerspellers. Seldom must ask speaker to spell again.

Very Good - Understands familiar fingerspellers. In time adapts to new fingerspellers. Occasionally asks for fingerspellers to spell again.

Average --- Understands teachers, houseparents and parents. New fingerspellers present some problems. Does miss some of what is spelled.

Fair ------ Teachers, houseparents and parents must modify fingerspelling for understanding. New fingerspellers present real problems. Gains many clues from situations and fingerspelling in order to get the idea.

Poor -------Great difficulty in understanding fingerspellers. Relies upon others in peer group to translate for him. Always defers to signs or writing to be sure of the communication.

Rater_____

SIGNS

Name_____

5	4	3	2	1
Excellent	Very Good	Average	Fair	Poor

Instructions

Excellent - Understands most signers. Adapts quickly to new signers. Seldom must ask signers to sign again.

Very Good - Understands familiar signers. In time adapts to new signers. Occasionally asks for signers to sign again.

Average --- Understands teachers, houseparents and parents. New signers present some problems. Does miss some of what is signed.

Fair ------ Teachers, houseparents and parents must modify signs for understanding. New signers present real problems. Gains many clues from situations and lipreading in order to get idea.

Poor ------ Great difficulty in understanding signers. Relies upon others in peer group to translate for him. Always defers to lipreading or writing to be sure of the communication.

Rater_____

PART IV
(Script Narration)

Form A

One warm spring day Tom, Bill and Mary fixed a surprise for their grandmother. They put it in a yellow basket and walked over to their grandmother's house. They lived next door to her. Bill knocked on the door and she let them in. They all shouted. "We have a surprise for you. Can you guess what it is? (pause) 'We have one of our puppies for you." Grandmother was very pleased that the children brought her the puppy.

Form B

One windy day Pam and Melvin wanted to fly kites. They asked their mother for some money to buy kites. They went to the store and bought a red kite and a blue one. Their mother gave them some old rags to make tails for their kites. After they finished putting their kites together, they went to the park and began to fly them. The string on Melvin's kite broke and it fell into a tree.

Form C

One cold rainy day Pat and Dave's mother gave them some balloons to play with. Pat blew the big red balloon up. Mother went out to the kitchen to fix lunch. The boys began to play with the balloon. Their dog, Pepper, began to jump at the balloon. Suddenly Pepper's sharp claws hit the balloon and it burst with a loud "bang." The boys were very mad at Pepper for breaking their balloon.

Form D

One cold winter day John and Betty wanted to clean the snow off of their sidewalk. They could not find their snow shovel. John had an idea. They began to make big snowballs. They made three big snowballs. Betty said, "Look, the sidewalk is clean and we have three big snowballs. Let's make a snowman." Their neighbor, Mr. Brown, came over to see the snowman. He laughed and said, "You two had fun making your snowman, and you cleaned off your sidewalk at the same time. You are smart kids."

Form E

One summer day Frank's mother gave him 25¢. He went down to the bakery and bought five large cookies. The lady in the bakery put the cookies in a paper bag. On the way home he met two friends. He put the bag down on a tree stump and he gave each of his friends two cookies, and ate one himself. Then they played tag for awhile. When Frank started for home, he picked up the bag of cookies, then he looked inside and found that it was empty.

ILLINOIS COMMUNICATION SCALE

NAME: _____ SCHOOL _____

BIRTHDATE: _____ DATE: _____ I.Q.: _____

AVERAGE ACHIEVEMENT SCORE: _____

PREVIOUS YEARS IN ATTENDANCE: 1, 2 3 4 5 6 7 8 9 10 11 12 13

DEAFNESS OF RELATIVES:
M
F
S
M and F
M, F and S

HEARING LEVELS IN BETTER EAR (Average for 500, 1000, 2000 CPS. ISO 1964):
90+
80 - 90
70 - 80
60 - 70
50 - 60
40 - 50

SHAPE OF AUDIOGRAM:
Less than 12db
Greater than 12db
Flat
Rising Curve
U-shaped Curve
N.B. 500 CPS

USED HEARING AID DURING TEST:

☐ YES ☐ NO

The correct answers are indicated in the red guide. Answer sheets may be copied and duplicated with heat process duplicators which will not print the red guide.

****

SCORE

FORM	PART I	PART II	PART III	PART IV	PART V	TOTAL
"A"						
"B"						
"C"						
"D"						
"E"						

REMARKS: _____

_____

_____

_____

_____.

Test administered by: _____

Name _____ Age_____ School_____

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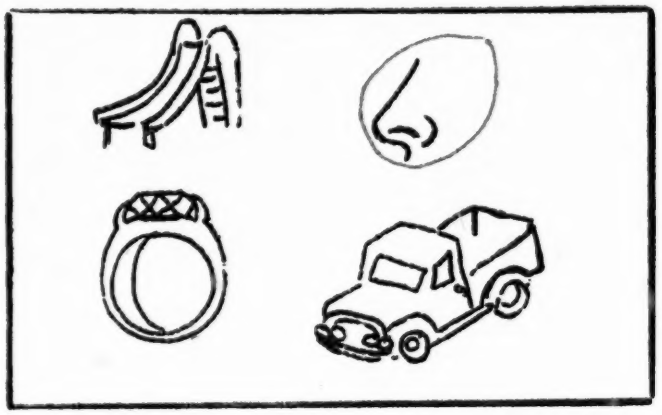

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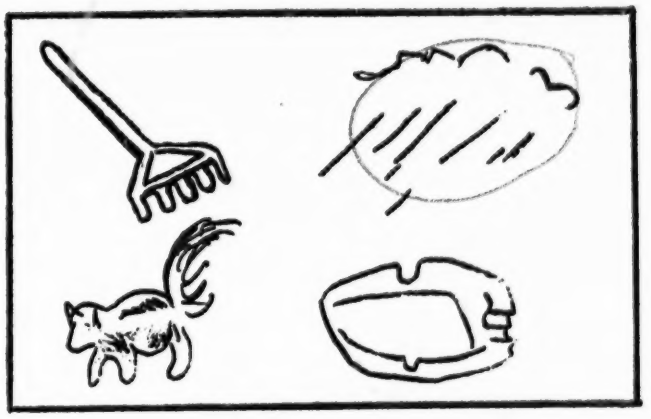

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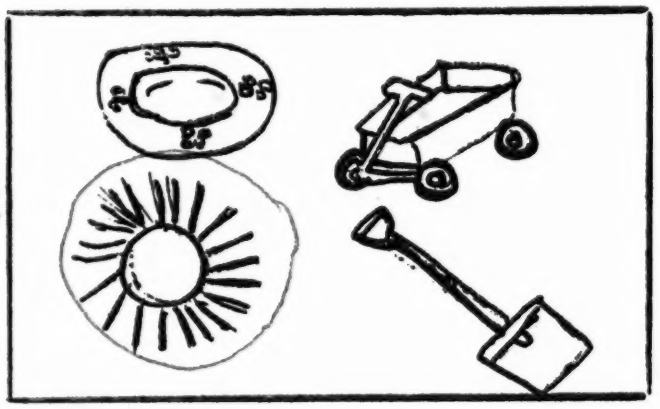

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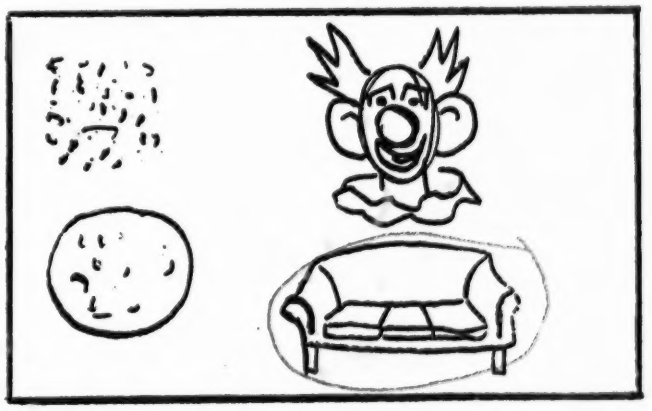

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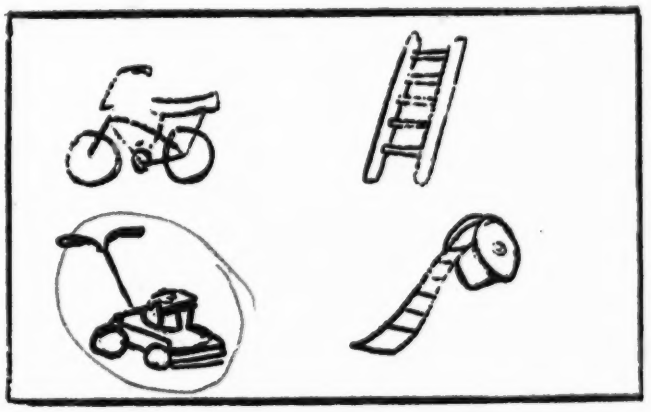

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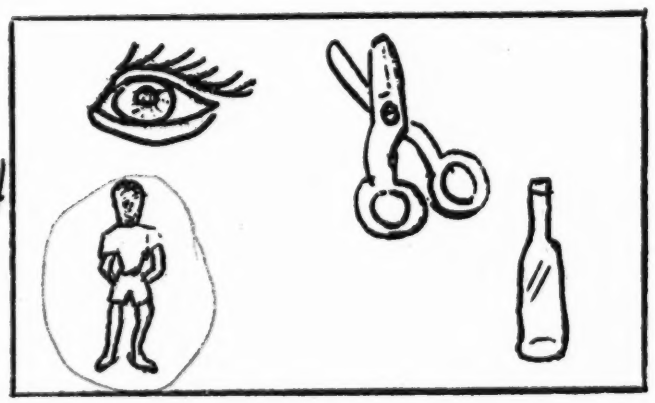

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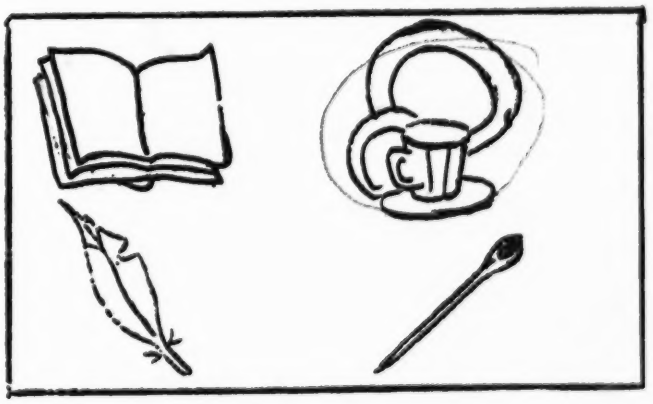

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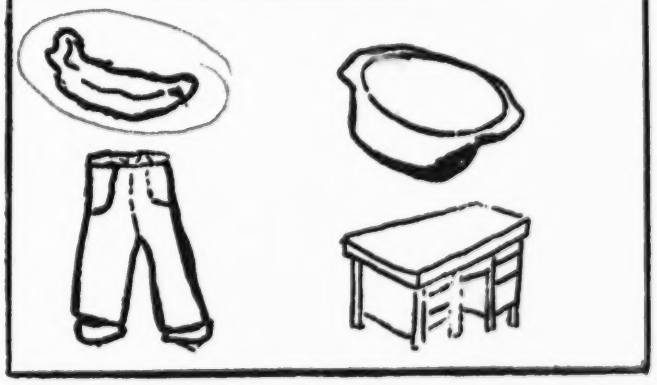

Part I Form B

Name _____ Age ____ School _____

1

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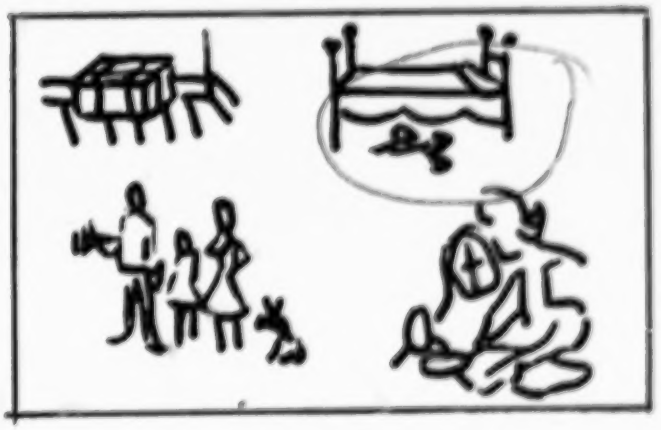

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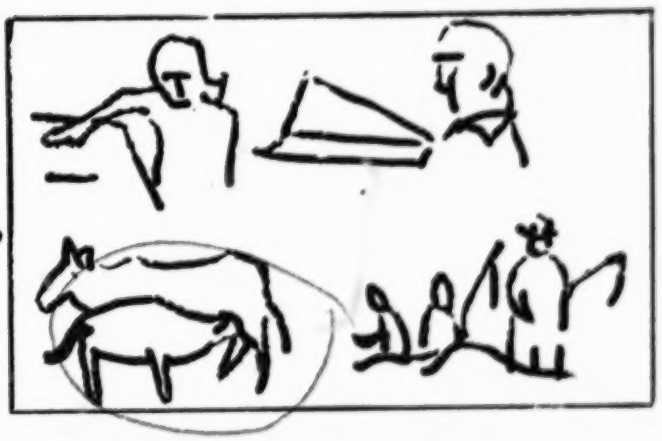

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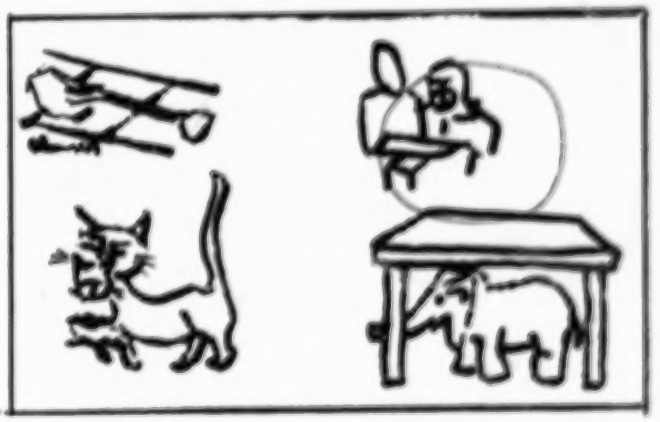

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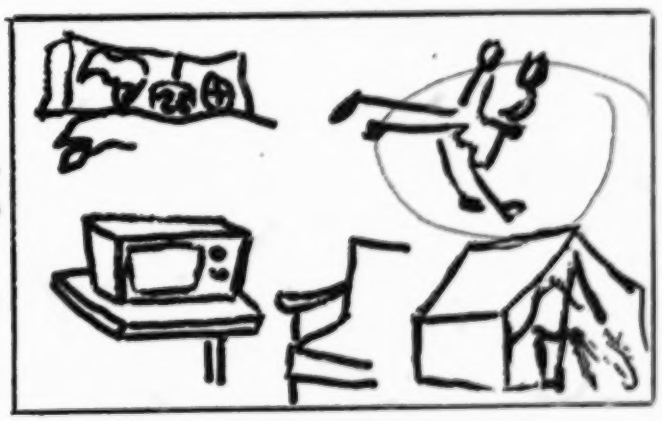

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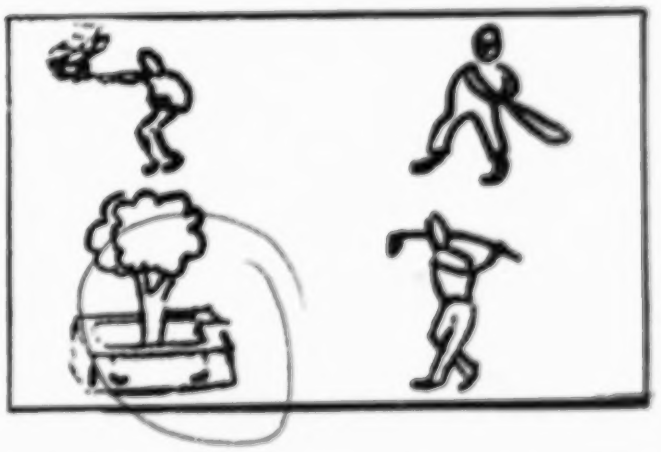

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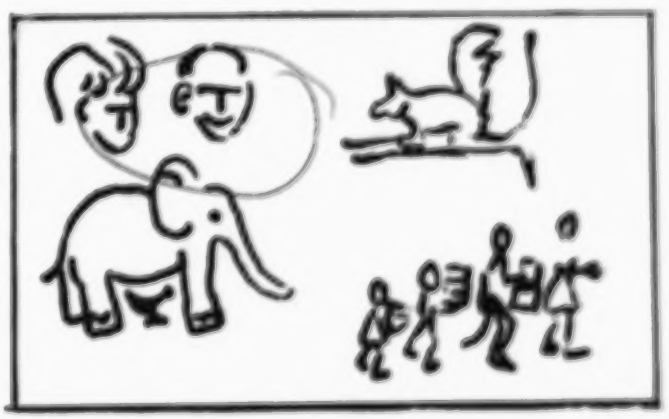

FORM "B", PART III.

1. ☐ There were six hats in the bag.
   ☐ Three hats.
   ☐ Two hats were in the bag.
   ☐ No hats were in the bag.
   ☐ One hat.
   _____.

2. ☐ Under the chair.
   ☐ The brown paper bag was on the table.
   ☐ There was no paper bag.
   ☒ The bag was in the wastebasket.
   ☐ _____
   _____.

3. ☐ It flew into the air.
   ☒ It fell over and things spilled out of it.
   ☐ Water came out of the wastebasket.
   ☐ Nothing happened to the wastebasket.
   ☐ _____
   _____.

4. ☐ The balloons were in the little girl's purse.
   ☐ In the glass.
   ☒ All of the balloons were in the bag.
   ☐ The little girl did not have any balloons.
   ☐ _____.
   _____.

5. ☐ The dog found it.
   ☒ The little girl found the paper bag.
   ☐ Mother found the paper bag.
   ☐ There was no paper bag.
   ☐ _____
   _____.

6. ☐ She chewed it.
   ☒ The little girl blew up the balloon.
   ☐ Put it in her shoe.
   ☐ There were no balloons.
   ☐ _____
   _____.

7. ☐ The hat was blue.
   ☐ It was orange
   ☐ She did not have a hat.
   ☒ Red and yellow.
   ☐ _____
   _____.

8. ☐ I don't know who had a party.
   ☐ Mother and father had a party.
   ☒ The little girl.
   ☐ The children.
   ☐ _____
   _____.

9. ☐ The blue balloon did pop.
   ☒ No it did not pop.
   ☐ Yes it did.
   ☐ It flew away.
   ☐ _____.
   _____.

10. ☒ A large brown paper bag was in the wastebasket.
    ☐ A toy airplane was in the wastebasket.
    ☐ Some trash was in the basket.
    ☐ A book was in the basket.
    ☐ _____
    _____.

FORM "B", PART IV.

1. ☒ I don't know.
   ☐ Melvin climbed up into the tree.
   ☒ No, he did not.
   ☐ Yes, he did.
   ☐ _____
   _____.

2. ☐ When it was snowing.
   ☐ At night.
   ☒ One windy day.
   ☐ After school.
   ☐ _____
   _____.

3. ☐ The color of the kite was brown.
   ☒ Red.
   ☐ The kite was yellow.
   ☐ Black.
   ☐ _____
   _____.

4. ☐ Sally.
   ☐ The girl's name was Barbara.
   ☒ Her name was Pam.
   ☐ Jane.
   ☐ _____
   _____.

5. ☐ Grandmother had a red kite.
   ☒ Pam.
   ☐ There was no red kite.
   ☐ Father.
   ☐ _____
   _____.

6. ☐ The man at the store.
   ☐ Their neighbor.
   ☐ Uncle Jim.
   ☒ Mother gave them rags for the tails of their kites.
   ☐ _____
   _____.

7. ☐ There were three boys flying kites.
   ☐ Seven
   ☒ One boy.
   ☐ Four boys were flying kites.
   ☐ _____
   _____.

8. ☐ It was raining outside.
   ☒ It was a windy day.
   ☐ It was snowing.
   ☐ It was broken.
   ☐ _____
   _____.

9. ☐ Into the water.
   ☐ The kite fell into the boat.
   ☒ It fell in a tree.
   ☐ The blue kite fell in the street.
   ☐ _____
   _____.

10. ☐ From the baker.
    ☐ They got them from their teacher.
    ☐ At the police station.
    ☒ The children got their kites at the store.
    ☐ _____
    _____.

FORM "B", PART V.

1. ☐ Hi there!
   ☒ Hello.
   ☐ Come on.
   ☐ Good-bye.
   ☐ _____
   _____.

2. ☒ Has the mailman come?
   ☐ Do you have enough money?
   ☐ Why are you so late?
   ☐ Can't you see I'm busy?
   ☐ _____
   _____.

3. ☐ Did you mail the letter?
   ☐ How many girls went to the park?
   ☐ Can I see you this afternoon?
   ☒ Do you want some ice cream?
   ☐ _____
   _____.

4. ☐ I smell popcorn.
   ☐ Open the window.
   ☒ Use the dictionary.
   ☐ Put some wood on the fire.
   ☐ _____
   _____.

5. ☐ I can't read without my glasses.
   ☒ I hit my thumb with a hammer.
   ☐ They had a good time at the party.
   ☐ They were very late getting to work today.
   ☐ _____
   _____.

6. ☐ Close the door.
   ☐ Put on your pajamas.
   ☒ Go to bed.
   ☐ Go home.
   ☐ _____
   _____.

7. ☐ It snowed very hard last night.
   ☒ I can't find a place to park the car.
   ☐ I bought a new car last week.
   ☐ It was good to see so many old friends.
   ☐ _____
   _____.

8. ☐ What time is it?
   ☐ What are you doing?
   ☐ What happened over there?
   ☐ What's the matter with him?
   ☐ _____
   _____.

9. ☐ January was very cold this year.
   ☐ He brings his lunch in a brown bag.
   ☐ He is a long way from home.
   ☒ January is a long month.
   ☐ _____
   _____.

10. ☐ He cooked the fish.
    ☒ Let's go for a walk.
    ☐ Let's get in out of the rain.
    ☐ He can't hear a thing.
    ☐ _____
    _____.

Name _____ Age _____ School _____

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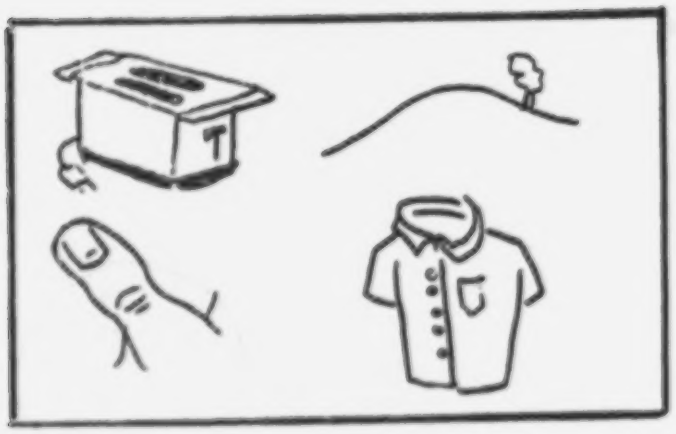

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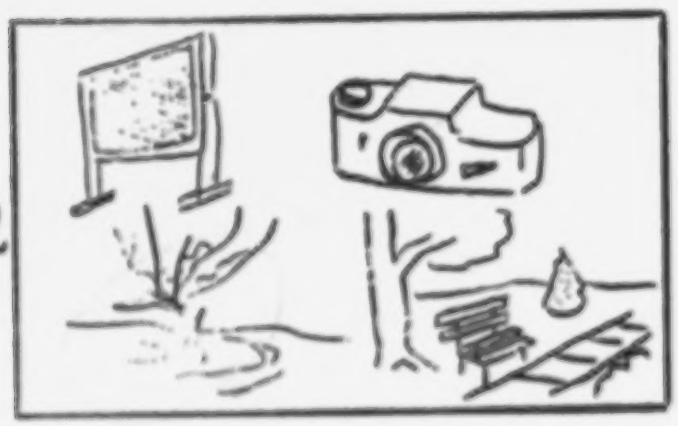

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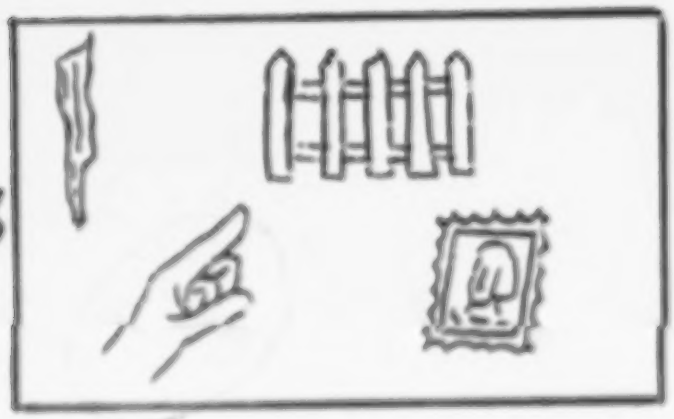

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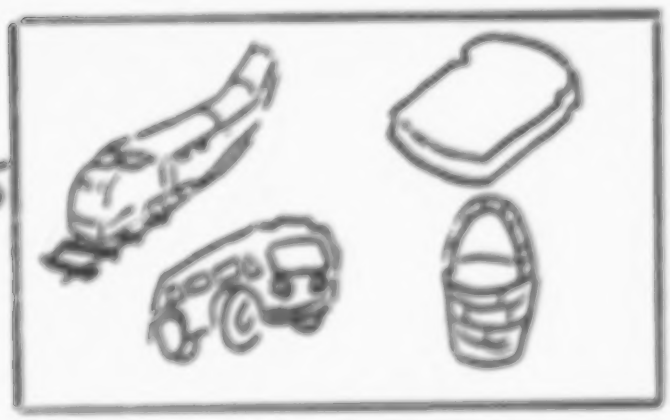

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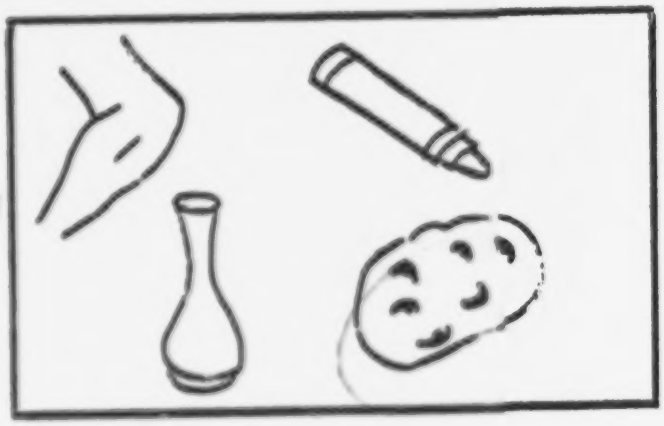

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Name _____ Age _____ School _____

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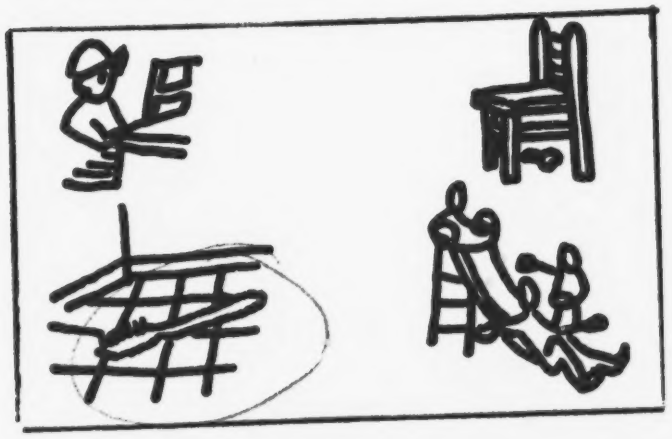

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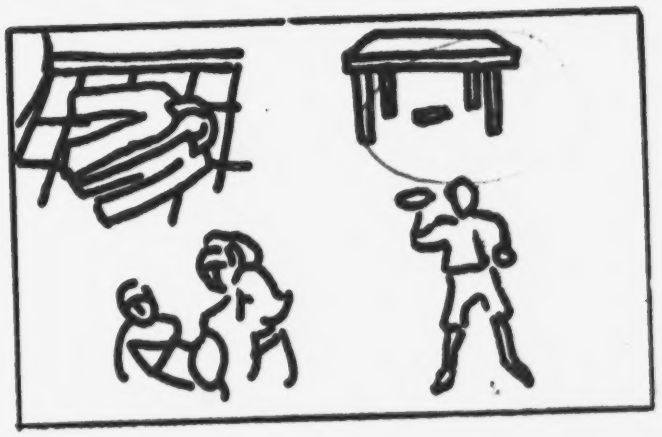

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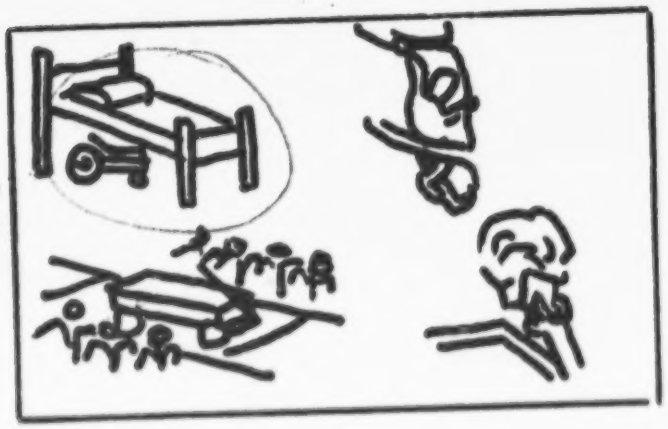

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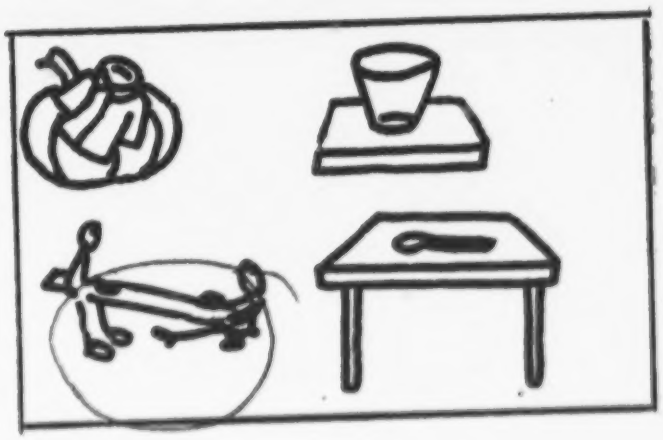

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FORM "C", PART III.

1. ☐ Grandfather ate a cookie.
   ☒ The little girl.
   ☐ There were no cookies.
   ☐ John ate a cookie.
   ☐ _____
   _____.

2. ☒ Mother
   ☐ The little dog.
   ☐ The horse made the cookies.
   ☐ No one made the cookies.
   ☐ _____
   _____.

3. ☐ On the floor.
   ☐ There was no cookie jar.
   ☐ The cookie jar was on the shelf.
   ☐ It was under the chair.
   ☐ _____
   _____.

4. ☐ The cookie jar did not break.
   ☐ Yes, it did.
   ☐ It fell off of the shelf.
   ☒ It fell on to the floor and broke.
   ☐ _____
   _____.

5. ☐ There were none.
   ☐ Five of them.
   ☐ There were six cookie jars.
   ☐ One cookie jar was on the shelf.
   ☐ _____
   _____.

6. ☐ Threw it out of the window.
   ☐ Gave it to the dog.
   ☒ The little girl ate the cookie.
   ☐ The little girl put the cookie in the cookie jar.
   ☐ _____
   _____.

7. ☒ It was green.
   ☐ The cookie jar was blue.
   ☐ The color of the cookie jar was white.
   ☐ There was no cookie jar.
   ☐ _____
   _____.

8. ☐ In the wastebasket.
   ☐ The cookies were in a box.
   ☒ Inside the cookie jar.
   ☐ The cookies were on the table.
   ☐ _____
   _____.

9. ☒ Cookies were in the jar.
   ☐ There was ice cream in the jar.
   ☐ In the jar the little girl found some candy.
   ☐ The cookie jar was empty.
   ☐ _____
   _____.

10. ☐ She fell off the stool.
    ☐ The shelf broke.
    ☐ The little girl did not reach for the cookie jar.
    ☒ The cookie jar fell off the shelf.
    ☐ _____
    _____.

FORM "C", PART IV.

1. ☐ In the wastebasket.
   ☐ Mother put the balloons in her pocket.
   ☒ She put them on the table.
   ☐ In the box.
   ☐ _____
   _____.

2. ☐ The balloons became larger.
   ☐ Pepper ran away.
   ☒ The balloon broke when Pepper hit it.
   ☐ Nothing happened.
   ☐ _____
   _____.

3. ☐ There were five boys.
   ☑ There were two boys.
   ☐ Seven boys.
   ☑ Two.
   ☐ _____
   _____.

4. ☐ Mother went to the store.
   ☐ To the baseball game.
   ☑ She went outside.
   ☐ She went to the kitchen.
   ☐ _____
   _____.

5. ☐ The man at the store.
   ☑ Mother gave them the balloons.
   ☐ A dog gave them the balloons.
   ☐ No one gave them the balloons.
   ☐ _____
   _____.

6. ☐ The wind.
   ☐ The boys did.
   ☑ Pepper's claw burst the balloon.
   ☐ The balloon did not break.
   ☐ _____
   _____.

7. ☐ The balloon was green.
   ☑ It was red.
   ☐ The balloon was blue.
   ☐ It was yellow
   ☐ _____
   _____.

8. ☐ Mother did.
   ☐ The mailman
   ☑ Pat blew up the balloon.
   ☐ Uncle Joe blew it up.

9. ☐ _____
   _____.

9. ☐ The boys spanked the baby.
   ☐ Yes, they did.
   ☐ They spanked Pepper.
   ☑ No, the boys did not spank Pepper.
   ☐ _____
   _____.

10. ☐ A hot windy day.
    ☐ After school.
    ☑ They got the balloons one cold, rainy day.
    ☐ There were no balloons.
    ☐ _____
    _____.

FORM "C", PART V.

1. ☐ I don't see it!
   ☐ Shine your shoes.
   ☐ I don't know.
   ☐ This is Ruth's brother.
   ☐ _____
   _____.

2. ☐ Have you been here before?
   ☐ Have you found your keys?
   ☐ How many fish did you catch?
   ☐ How did you get here?
   ☐ _____
   _____.

3. ☐ May I see that?
   ☐ Tom found a purse.
   ☐ The purse is black.
   ☐ May I help you?
   ☐ _____
   _____.

4. ☐ Do you want the door open?
   ☐ Can I have five dollars?
   ☐ Do you have a watch?
   ☐ Can I go to a movie?
   ☐ _____
   _____.

5. ☐ The letter is on the table in the hall.
   ☐ Put the purse on the table in the bedroom.
   ☐ She went to church with her mother.
   ☐ The church was very old and beautiful.
   ☐ _____
   _____.

6. ☐ Open the window.
   ☐ Come on in.
   ☐ Turn off the lights.
   ☐ The door is open.
   ☒ _____
   _____.

7. ☐ Your shirt is torn.
   ☐ Your room is messy.
   ☒ Your hair needs combing.
   ☐ Your shoes need shining.
   ☐ _____
   _____.

8. ☐ I'm tired.
   ☒ She's sick.
   ☐ He needs help.
   ☐ Come on.
   ☐ _____
   _____

9. ☐ Show me your sore tooth.
   ☐ Tomorrow will be Monday.
   ☐ Show me where it hurts.
   ☒ Tomorrow it may snow.
   ☐ _____
   _____.

10. ☐ That sweater is dirty.
    ☒ She came to school early.
    ☐ He picked up her handkerchief.
    ☐ She made an apron.
    ☐ _____
    _____.

Name _____ Age _____ School _____

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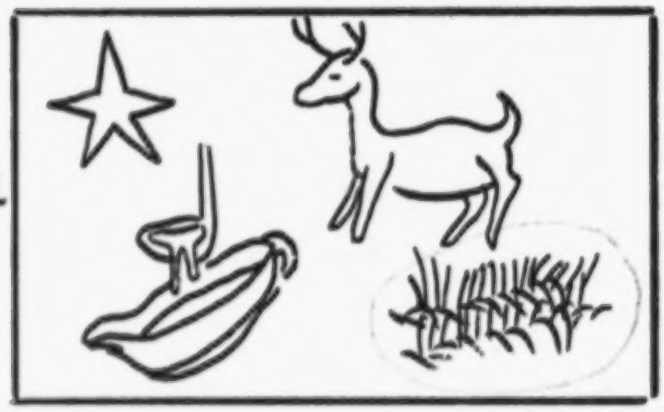

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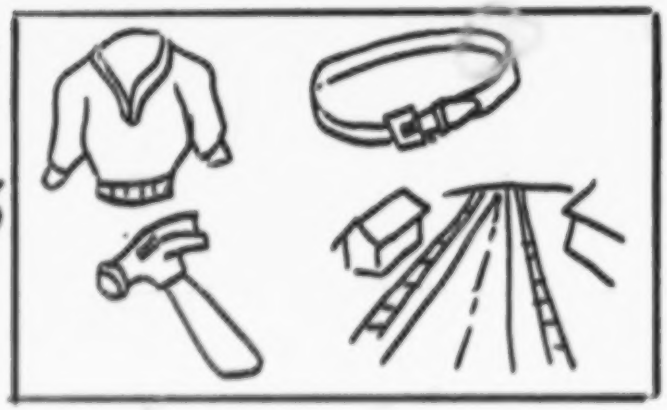

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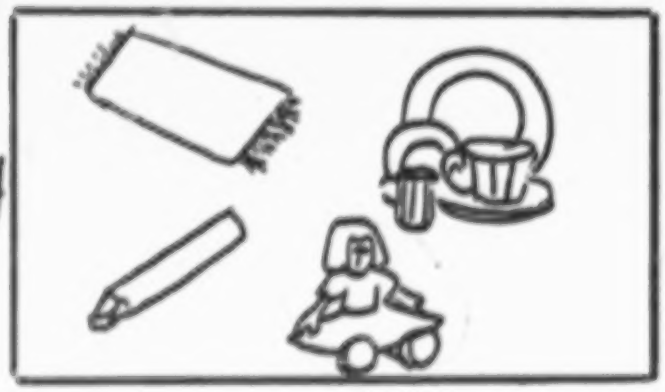

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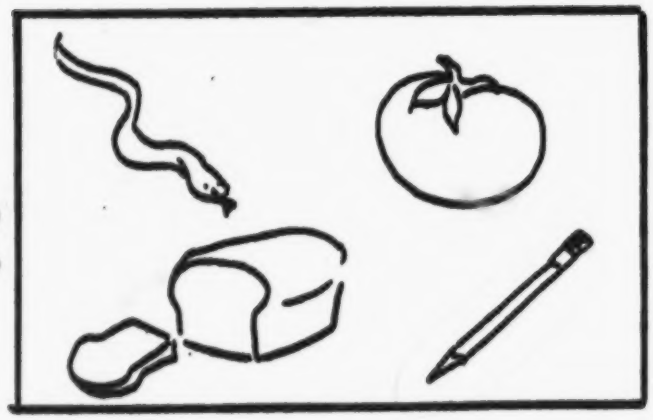

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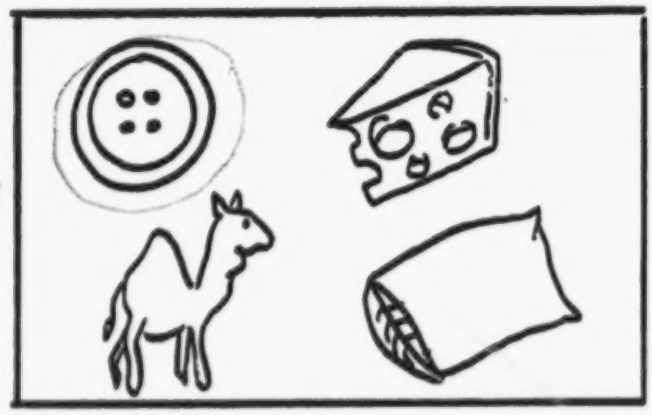

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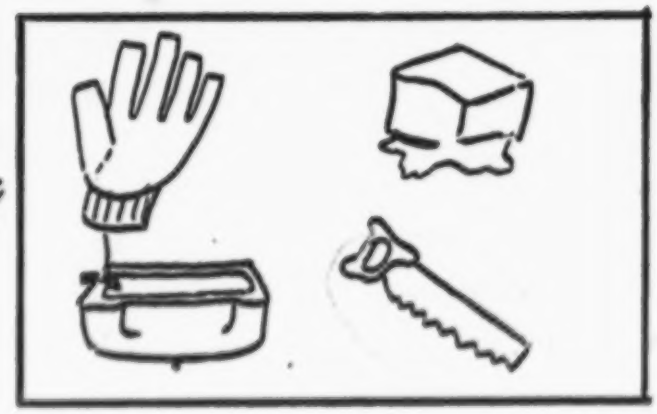

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Name _____ Age _____ School _____

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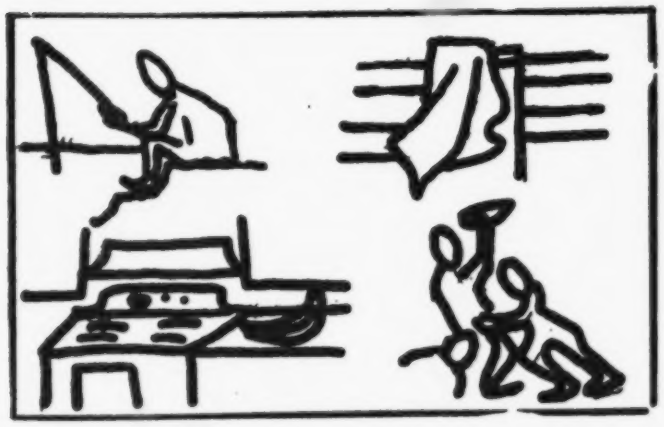

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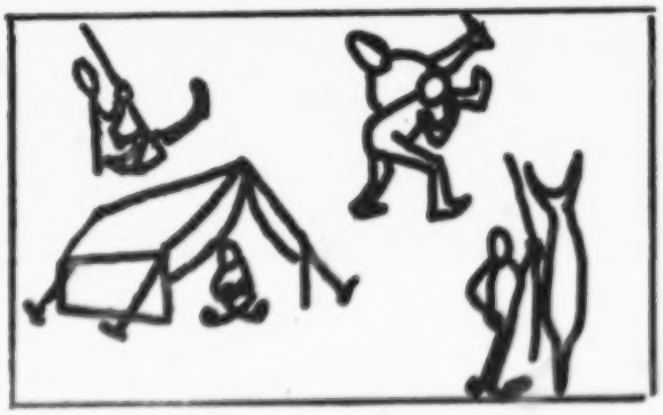

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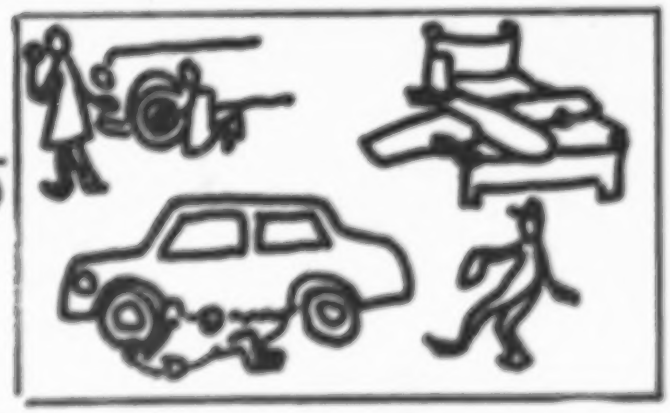

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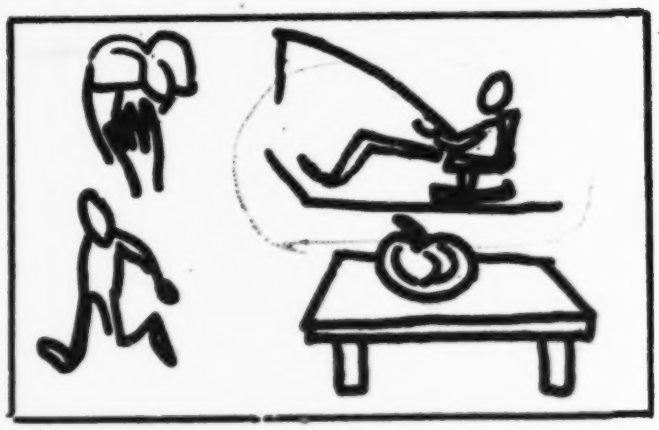

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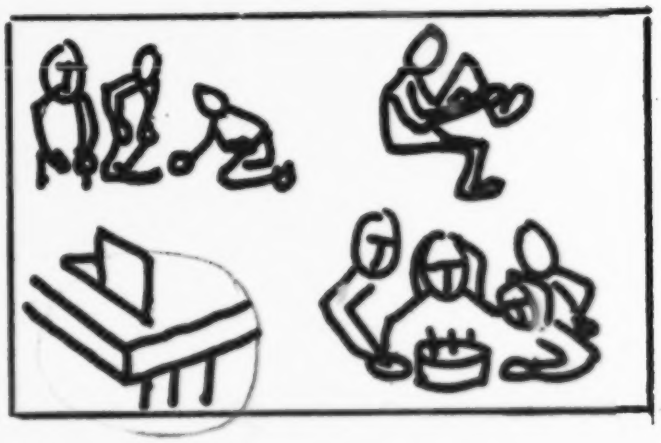

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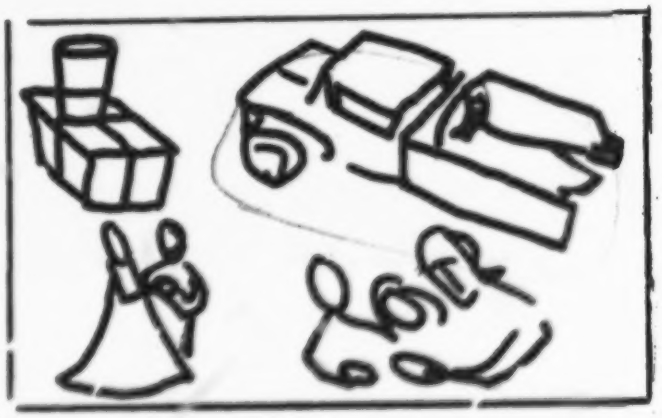

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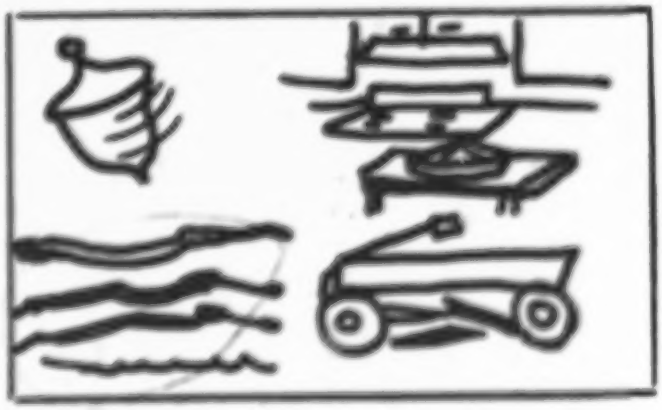

FORM "D", PART III

1. ☐ The hat was blue.
   ☐ The hat was red.
   ☐ It was green.
   ☐ The hat was brown.
   ☐ _____
   _____.

2. ☐ Three shoes were in it.
   ☐ In the suitcase there was one pair of shoes.
   ☐ There were three pairs of shoes in the suitcase.
   ☐ Six pairs of shoes.
   ☐ _____
   _____.

3. ☐ Mother put the dress in the suitcase.
   ☐ I don't know who put it in the suitcase.
   ☐ There was no dress in the suitcase.
   ☐ Mrs. Smith put the dress in the suitcase.
   ☐ _____
   _____.

4. ☐ Play clothes were in the suitcase.
   ☐ A cat was in the suitcase.
   ☐ A red hat was in the suitcase.
   ☐ Nothing was in the suitcase.
   ☐ _____
   _____.

5. ☐ Under the sink.
   ☐ The shoes were in the purse.
   ☐ In the suitcase.
   ☐ There were no shoes.
   ☐ _____
   _____.

6. ☐ Threw them away.
   ☐ Put them in the wastebasket.
   ☐ The little girl ate them.
   ☒ She put them around her neck.
   ☐ _____
   _____.

7. ☐ The dress was black.
   ☒ Green and white.
   ☐ Blue and orange.
   ☐ The color of the dress was pink.
   ☐ _____
   _____.

8. ☒ The little girl.
   ☐ Mother put on the dress.
   ☐ The monkey put on the dress.
   ☐ There was no dress.
   ☐ _____
   _____.

9. ☒ The girl fell down.
   ☐ No, she didn't.
   ☐ Yes, she tripped and fell down.
   ☐ She did not fall.
   ☐ _____
   _____.

10. ☐ She dropped her purse.
    ☐ It began to rain.
    ☐ Her hat fell off.
    ☒ The little girl fell when she began t
      wal
    ☐ _____
    _____.

FORM "D", PART IV.

1. ☐ One rainy day they wanted to clean off their sidewalk.
   ☐ On a hot day.
   ☐ John and Billy cleaned their sidewalk after school.
   ☒ One cold, winter day.
   ☐ _____.

2. ☐ She fell down in the snow.
   ☒ No, she did not fall.
   ☒ Betty did not fall into the snow.
   ☐ Yes, she fell into the snow.
   ☐ _____.

3. ☐ The dog did.
   ☐ The boys had an idea.
   ☐ Mother had an idea.
   ☒ John did.
   ☐ _____.

4. ☒ Yes, he thought they were smart kids.
   ☐ The baker did.
   ☐ No, he didn't think they were smart.
   ☐ A cat thought they were smart.
   ☐ _____.

5. ☐ The dog had on a yellow hat.
   ☒ It was on the snowman.
   ☐ The yellow hat was on the tree.
   ☐ There was no yellow hat.
   ☐ _____.

6. ☐ The mother and father made it.
   ☑ John and Betty did.
   ☐ The snowman was made by the teachers.
   ☐ Grandmother made a snowman.
   ☐ _____.

7. ☐ In the car.
   ☐ The shovel was under the table.
   ☐ The children's shovel was broken.
   ☑ I did not see the shovel.
   ☐ _____.

8. ☐ The people.
   ☑ The children.
   ☐ The boys.
   ☐ The girls.
   ☐ _____.

9. ☐ There were two men.
   ☑ One man was shoveling snow.
   ☐ No man shoveled snow.
   ☐ Five men.
   ☐ _____.

10. ☐ It was brown.
    ☐ The snowman was red.
    ☒ The color of the snowman was white.
    ☐ It was black.
    ☐ _____.

FORM "C", PART V.

1. ☐ Close the door.
   ☒ Open a window.
   ☐ Pick up the pencil.
   ☐ Sharpen your pencil.
   ☐ _____
   _____.

2. ☒ Don't watch the clock.
   ☐ The dog ran away.
   ☐ Don't come in here.
   ☐ How much is that clock?
   ☐ _____
   _____.

3. ☐ How much is it?
   ☐ Where is it?
   ☒ Where are you going?
   ☐ Have you any money?
   ☐ _____
   _____.

4. ☐ Look at me, please.
   ☒ Look in the closet.
   ☐ She found a doll.
   ☐ She's not here today.
   ☐ _____
   _____.

5. ☐ Empty the wastebasket.
   ☐ He bought a blue kite.
   ☐ His new car is blue.
   ☒ The milk bottle is empty.
   ☐ _____
   _____.

6. ☐ May I have some more meat?
   ☒ May I go with you?
   ☐ May I have some more beans?
   ☐ May I see that please?
   ☐ _____
   _____.

7. ☐ Make some more coffee.
   ☒ The coffee pot is empty.
   ☐ Do you want coffee or tea?
   ☐ May I have some sugar for my coffee?
   ☐ _____
   _____.

8. ☐ Hit the ball.
   ☐ Step on it.
   ☒ I'm thirsty.
   ☐ I'm cold.
   ☐ _____
   _____.

9. ☒ That car has a broken window.
   ☐ There is a good movie downtown.
   ☐ Watch the cars when you cross the street.
   ☐ He rode his horse down the main street.
   ☐ _____
   _____.

10. ☐ I can't find my shoe.
    ☐ He ate six hotdogs.
    ☒ I lost my shoe.
    ☐ He climbed the tree.
    ☐ _____
    _____.

Name _____ Age _____ School _____

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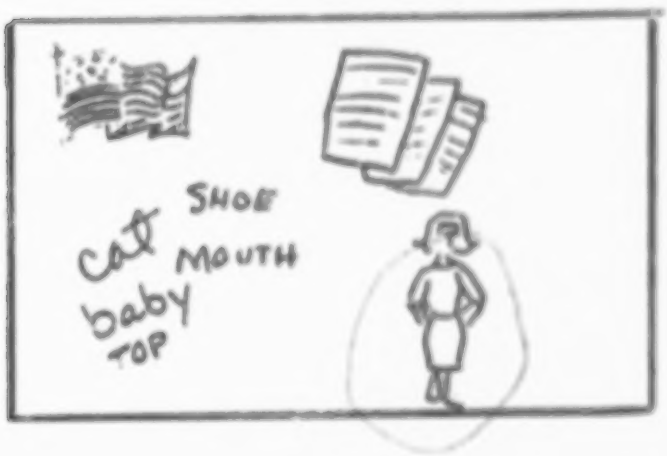

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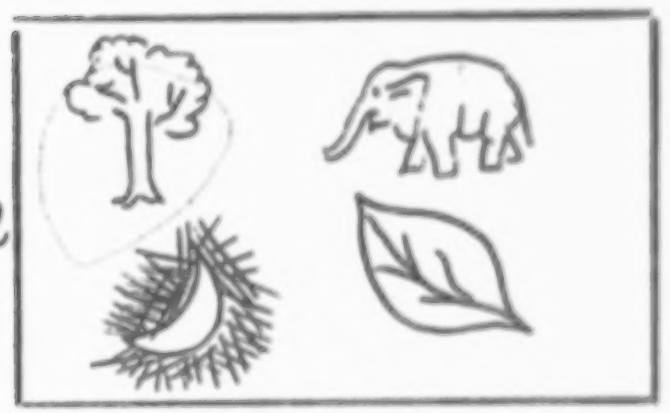

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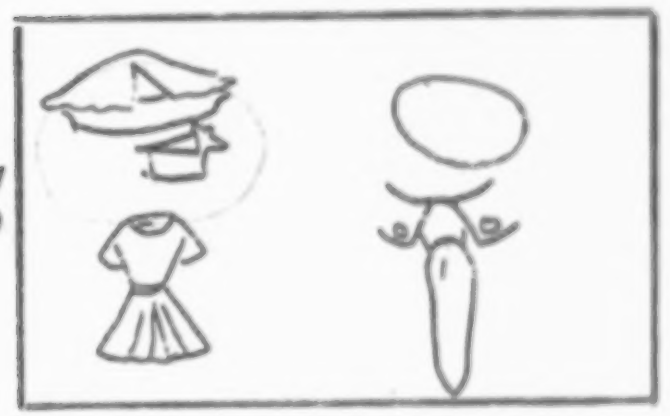

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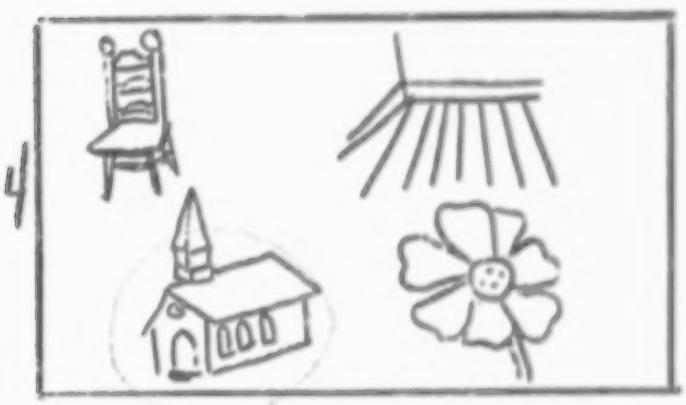

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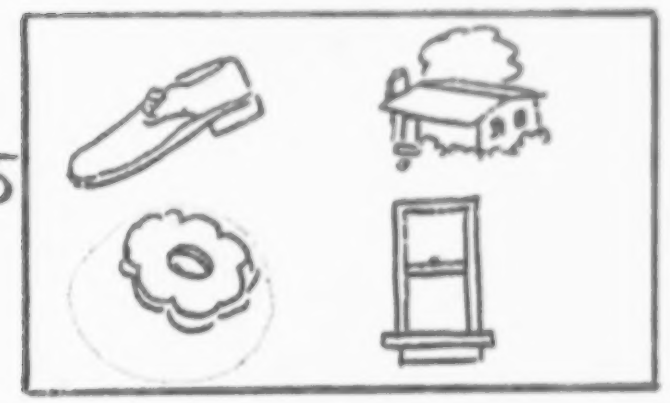

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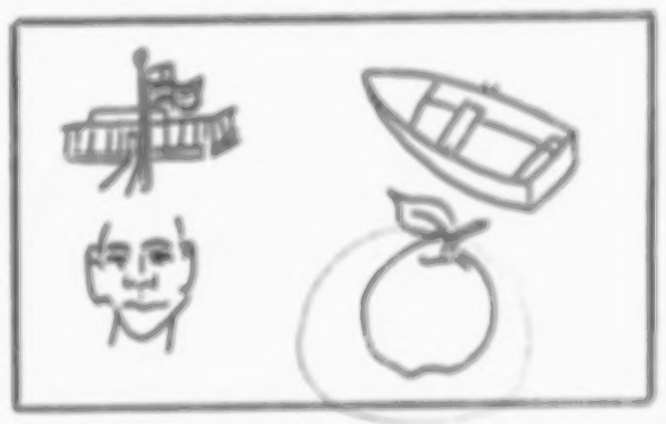

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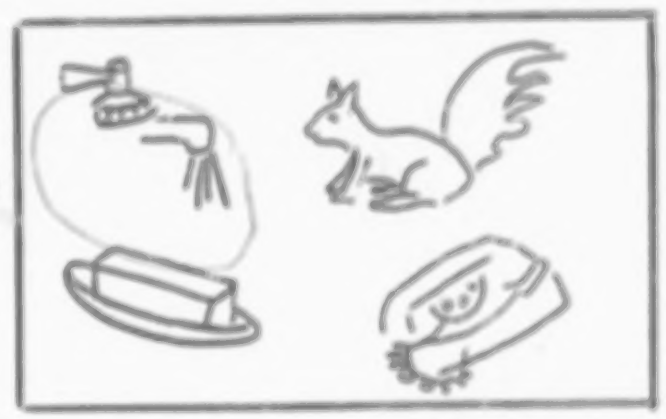

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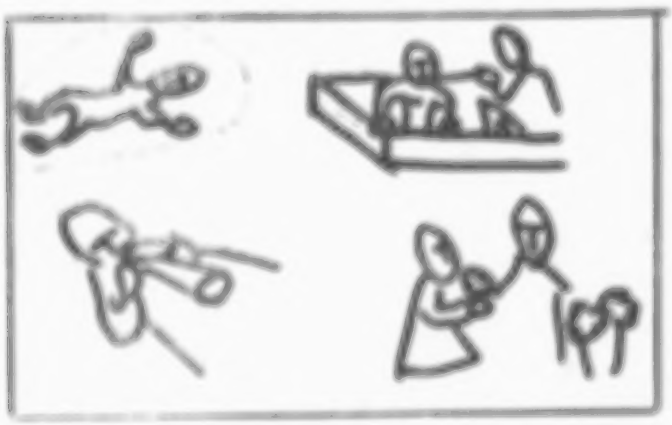
10

Form E Part I

Name _____ Age _____ School _____

1



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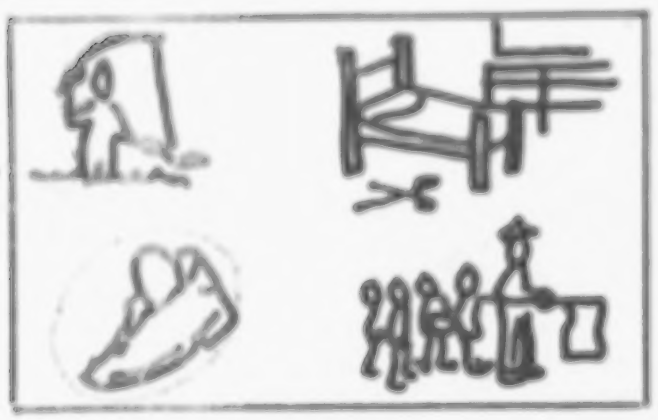

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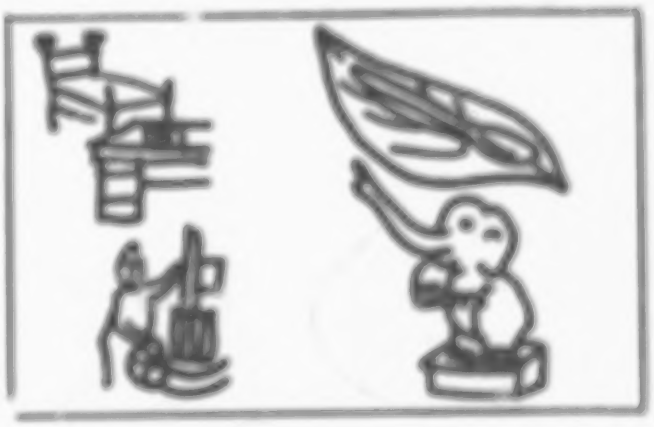

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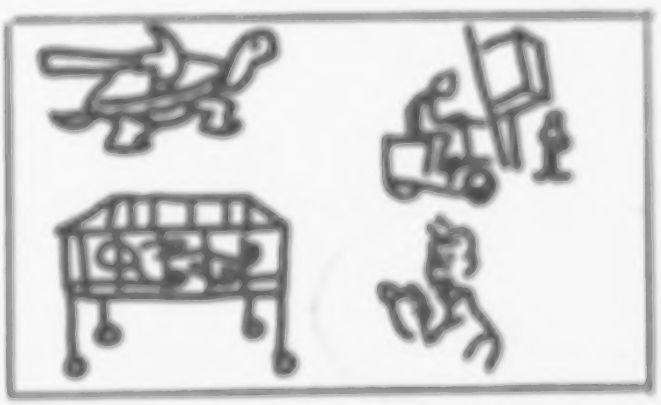

10

FORM "C", PART III.

1. ☐ In a bag.
   ☐ The hats were in a suitcase.
   ☐ The hats were under a tree.
   ☑ In a box.
   ☐ _____
   _____.

2. ☐ A box of candy.
   ☐ There was a puppy in the blue present.
   ☑ A doll.
   ☐ In the blue present there was a cake.
   ☐ _____
   _____.

3. ☐ Black.
   ☐ The color of the doll's hair was green.
   ☐ Brown.
   ☑ The doll's hair was yellow.
   ☐ _____
   _____.

4. ☐ Seven.
   ☑ There were two hats in the box.
   ☐ Four hats were in the box.
   ☐ In the box there were nine hats.
   ☐ _____
   _____.

5. ☐ A horse.
   ☑ Her mother gave her a doll.
   ☐ She found the doll.
   ☐ There was no doll.
   ☐ _____
   _____.

6. ☐ The little girl cried.
   ☐ Dropped her comb.
   ☐ She ran home.
   ☐ When the little girl saw the presents she laughed.
   ☐ _____
   _____.

7. ☑ The doll was in the box.
   ☐ Under the lamp.
   ☐ The doll was in the purse.
   ☐ In the snow.
   ☐ _____
   _____.

8. ☐ The little girl ate the doll.
   ☑ She put the doll in her pocket.
   ☐ Put a hat on the doll.
   ☐ She did not have a doll.
   ☐ _____
   _____.

9. ☐ She put on the policeman's hat.
   ☑ Yes. She did put it on.
   ☐ The little girl did not put on a straw hat.
   ☐ I don't know.
   ☐ _____
   _____.

10. ☐ Grandmother.
    ☐ The dog opened the presents.
    ☑ The little girl.
    ☐ Mother opened the presents.
    ☐ _____
    _____.

FORM "E", PART IV.

1. ☐ At school.
   ☐ Frank bought the cookies at church.
   ☐ He bought cookies at the bakery.
   ☐ Frank bought them.
   ☐ _____
   _____.

2. ☐ He ate six cookies.
   ☐ Frank ate nine cookies.
   ☐ One cookie.
   ☐ He didn't eat any cookies.
   ☐ _____
   _____.

3. ☐ One cold day.
   ☐ His mother did not give him a cookie.
   ☐ Frank's mother gave him a cookie at breakfast.
   ☐ One summer day his mother gave him 25¢.
   ☐ _____
   _____.

4. ☐ He threw away the paper bag.
   ☐ I don't know.
   ☐ No, he did not.
   ☐ Frank threw away the paper bag.
   ☐ _____
   _____.

5. ☐ The lady in the bakery.
   ☐ A baseball player put the cookie in the bag.
   ☐ No one put the cookies in it.
   ☐ Frank's teacher did.
   ☐ _____
   _____.

6. ☐ The bag was orange.
   ☒ It was brown.
   ☐ The paper bag was black.
   ☐ There was no paper bag.
   ☐ _____
   _____.

7. ☐ The boys did.
   ☐ Grandmother baked them.
   ☐ No one bought them.
   ☒ Frank bought the cookies.
   ☐ _____
   _____.

8. ☐ Seven children.
   ☐ No one ate cookies.
   ☒ Three of them ate cookies.
   ☐ Five children ate cookies.
   ☐ _____
   _____.

9. ☒ The children played tag.
   ☐ They just sat down.
   ☐ They played baseball.
   ☐ The children played with dolls.
   ☐ _____
   _____.

10. ☐ He was going to church.
    ☐ Frank was walking to grandmother's house.
    ☒ Frank was going home.
    ☐ He was going to school.
    ☐ _____
    _____.

FORM "E", PART V.

1. ☐ Don't stop.
   ☐ Stop shoving.
   ☐ Stop that!
   ☐ Don't shove.
   ☐ _____
   _____.

2. ☐ It's almost time to start.
   ☐ The meeting will start soon.
   ☐ Can you come to the meeting?
   ☐ The meeting was last night.
   ☐ _____
   _____.

3. ☐ The boys are playing baseball.
   ☐ Try very hard to hit the baseball.
   ☐ The boys are playing football.
   ☐ The boys played a good game today.
   ☐ _____
   _____.

4. ☐ The water is too cold.
   ☐ It's cold outside.
   ☐ This is the hottest day this summer.
   ☐ The water is too hot.
   ☐ _____
   _____.

5. ☐ I read about that in a book.
   ☐ The dog bit the man.
   ☐ I read it in yesterday's paper.
   ☐ The man hit the dog.
   ☐ _____
   _____.

6. ☐ Good Evening.
   ☐ Good-bye.
   ☐ Good Morning.
   ☐ So Long.
   ☐ _____
   _____.

7. ☐ I like to exercise in the gym.
   ☐ Bowling is a good exercise.
   ☐ Do you like to bowl?
   ☐ The sun was bright.
   ☐ _____
   _____.

8. ☐ Give me a yellow pencil.
   ☐ She hurt her arm.
   ☐ I want a pencil.
   ☐ She broke her leg.
   ☐ _____
   _____.

9. ☐ How far did you go?
   ☐ What's her name?
   ☐ How did you break it?
   ☐ What kind of man is he?
   ☐ _____
   _____.

10. ☐ Don't you think it's cold in here?
    ☐ Can't you come over tonight?
    ☐ Can I have one of those apples?
    ☐ Do you think it will rain?
    ☐ _____
    _____.

APPENDIX D

Indiana sub items intercorrelations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
1. L & L Vocabulary		72	55	61	69	66	69	45	49	70	44	44	52	55	46	28	42	55	57	52	30	27	35	46	43	-34	-13	07	17	51	31	28	1
2. L & L Sentence			52	57	70	64	66	42	38	69	44	40	48	47	40	22	32	47	53	44	18	15	31	41	40	-37	-12	06	15	57	29	28	2
3. L & L Story				70	50	57	52	67	47	57	54	40	48	47	61	30	41	47	72	56	41	43	30	64	62	-16	-09	-03	22	39	51	47	3
4. L & L Narration					52	55	53	63	52	54	48	54	65	64	52	29	40	68	67	51	38	37	29	56	56	-23	-06	02	16	47	46	39	4
5. L & L Random						69	70	39	40	77	57	47	45	47	49	35	47	54	49	59	33	31	31	47	49	-32	-11	05	14	57	32	32	5
6. L R Vocabulary							73	47	40	67	52	47	48	49	44	33	44	56	57	44	29	24	27	43	47	-23	-08	06	13	48	34	30	6
7. L R Sentence								38	36	68	47	43	47	46	47	30	45	51	57	50	24	22	20	45	38	-35	-13	06	17	48	33	32	7
8. L R Story									44	50	50	54	64	63	50	27	30	61	62	50	34	34	24	59	53	-09	+03	-04	17	35	41	38	8
9. L R Narration										40	33	28	43	46	50	34	45	49	43	48	43	44	35	48	40	-03	05	05	11	19	24	25	9
10. L R Random											58	52	57	56	49	24	39	60	56	54	27	31	28	49	51	-27	-08	-09	20	52	36	35	10
11. F-S Vocabulary												67	51	49	59	49	54	58	56	70	51	49	36	59	63	-05	-07	01	25	28	45	43	11
12. F-S Sentence													60	49	61	37	46	51	61	63	50	48	30	63	68	-04	-08	01	34	28	58	57	12
13. F-S Story														68	55	27	39	68	67	59	41	41	25	57	57	-12	-04	-03	21	35	49	44	13
14. F-S Narration															51	36	45	70	64	54	34	35	36	57	52	-13	-06	-01	26	39	40	34	14
15. F-S Random																37	48	57	62	64	49	51	38	59	57	01	03	03	24	21	41	41	15
16. L of S Vocabulary																	73	34	34	37	16	43	33	51	30	-02	-06	26	16	03	17	22	16
17. L of S Sentence																		47	45	66	60	54	49	61	40	-10	-10	16	18	09	23	29	17
18. L of S Story																			66	61	42	41	32	58	60	-07	-04	01	22	36	50	47	18
19. L of S Narration																				62	42	40	24	64	64	-15	-05	07	32	43	57	55	19
20. L of S Random																					37	51	37	69	58	-15	-05	12	26	27	47	48	20
21. Age																						83	26	61	59	-02	-04	30	06	-13	28	36	21
22. Years in School																							27	58	62	10	01	-22	11	-06	30	37	22
23. I.Q.																								42	30	-10	-07	-06	20	17	13	13	23
24. Achievement Test																									70	-11	-06	07	25	-3	53	54	24
25. Paragraph Meaning																										06	04	-06	26	28	39	60	25
26. Hearing Loss																											37	-18	-06	-33	-04	-04	26
27. Shape of Audiogram																												-07	-02	-13	-01	-04	27
28. Age Started to School																													-09	-14	-02	-01	28
29. Deaf Relatives																														13	41	43	29
30. Rating of Lip Reading																															37	33	30
31. Rating of Finger Spelling																																90	31
32. Rating of Language of Signs																																	

APPENDIX D

Illinois sub items Intercorrelations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
1. L & L Vocabulary		79	62	62	75	74	77	55	56	71	47	46	50	52	47	51	49	56	53	55	50	47	25	49	49	-27	-22	-02	-01	49	32	27	1
2. L & L Sentence			56	63	58	74	81	54	56	78	41	38	40	52	39	42	45	53	54	51	41	39	19	42	43	-27	-20	-02	-06	57	33	25	2
3. L & L Story				76	63	60	61	63	59	57	59	56	58	55	55	46	51	67	67	62	54	54	27	59	59	-10	-10	-08	14	30	45	43	3
4. L & L Narration					81	62	62	62	64	59	56	51	59	58	55	49	53	67	66	61	56	51	24	58	60	-14	-14	-01	08	27	49	46	4
5. L & L Random						74	77	60	64	79	56	52	51	63	58	59	60	57	59	68	54	74	39	54	54	-19	-21	-14	-01	42	42	34	5
6. L R Vocabulary							82	59	53	80	55	53	54	58	51	45	48	58	61	58	48	48	33	57	55	-11	-16	-09	-02	52	37	28	6
7. L R Sentence								61	59	80	49	47	49	59	51	45	49	53	56	57	47	46	27	51	50	-19	-19	-09	-01	51	34	27	7
8. L R Story									67	58	62	58	58	64	60	47	52	56	58	64	55	58	27	55	54	-12	-10	-11	07	32	47	43	8
9. L R Narration										56	62	55	58	61	70	58	62	59	61	71	62	63	29	53	54	-07	-10	-10	05	25	48	46	9
10. L R Random											55	53	53	57	54	41	49	55	57	57	46	47	37	56	56	-09	-16	-11	01	54	38	28	10
11. F-S Vocabulary												79	65	56	73	55	65	61	59	78	70	42	33	64	62	03	-10	-14	13	13	53	49	11
12. F-S Sentence													60	55	68	55	60	63	60	69	67	67	27	65	64	07	-08	-13	14	19	54	51	12
13. F-S Story														65	59	43	51	62	67	61	51	55	39	64	65	00	-13	-14	09	26	42	40	13
14. F-S Narration															60	49	56	61	66	61	49	54	41	54	55	-05	-16	-18	10	33	45	41	14
15. F-S Random																61	62	55	55	80	68	67	34	55	55	07	-06	-07	08	13	49	47	15
16. L of S Vocabulary																	80	49	46	73	62	61	21	35	35	02	-06	-05	10	08	36	34	16
17. L of S Sentence																		55	54	78	62	63	28	43	43	08	-09	-13	13	11	43	40	17
18. L of S Story																			76	62	53	55	33	61	62	02	-10	-11	16	31	50	46	18
19. L of S Narration																				64	52	56	36	65	67	01	-10	-12	14	32	47	42	19
20. L of S Random																					74	75	36	59	59	06	-08	-12	11	17	56	51	20
21. Age																						88	-02	70	70	-02	-05	12	05	-04	57	56	21
22. Years in School																							22	73	73	03	07	-31	08	02	58	57	22
23. I.Q.																								27	26	10	-16	-54	16	29	17	12	23
24. Achievement Test																									98	00	-09	-18	10	16	59	56	24
25. Paragraph Meaning																										00	-09	-17	07	16	59	56	25
26. Hearing Loss																											29	-15	-01	-22	-06	-05	26
27. Shape of Audiogram																												09	-08	-24	-04	-02	27
28. Age Started to School																													-04	-12	-07	-06	28
29. Deaf Relatives																														-06	09	08	29
30. Rating of Lip Reading																															04	-02	30
31. Rating of Finger Spelling																																96	31
32. Rating of Language of Signs																																	

Indiana Total Score Intercorrelations

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1.	Look & Listen		89	77	75	39	37	38	61	60	-34	-12	04	20	60	46	42	1
2.	Lip Reading			77	75	39	39	34	63	59	-26	-06	01	20	53	43	41	2
3.	Finger Spelling				86	56	56	41	73	74	-08	-06	00	32	37	58	56	3
4.	Language of Signs					63	57	42	76	65	-13	-08	13	30	31	51	52	4
5.	Age						83	26	61	59	-02	-04	30	06	-13	28	36	5
6.	Years in School							27	58	62	10	01	-22	11	-06	30	37	6
7.	I.Q.								42	30	-10	-07	-06	20	17	13	13	7
8.	Achievement Test Score									70	-11	-06	08	25	23	53	54	8
9.	Paragraph Meaning										06	04	-06	26	28	59	60	9
10.	Hearing Loss											57	-19	-06	-34	-04	-04	10
11.	Shape of Audiogram												-07	-03	-13	-01	-04	11
12.	Age Started to School													-09	-14	-03	-01	12
13.	Deaf Relatives														13	41	43	13
14.	Rating on Lip Reading															37	33	14
15.	Rating on Finger Spelling																90	15
16.	Rating on Language of Signs																	16

Illinois Total Score Intercorrelations

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1.	Look & Listen		90	70	77	59	57	31	60	61	-23	-21	-06	03	49	46	40	1
2.	Lip Reading			77	76	59	61	36	63	63	-14	-17	-12	02	51	47	39	2
3.	Finger Spelling				86	73	75	40	71	71	03	-12	-15	12	23	58	54	3
4.	Language of Signs					72	74	37	63	64	04	-10	-13	15	23	56	51	4
5.	Age						88	-02	70	70	-02	-05	12	05	-04	57	56	5
6.	Years in School							22	73	73	03	-07	-31	08	02	58	57	6
7.	I.Q.								27	27	10	-16	-54	16	29	17	12	7
8.	Achievement Test Score									98	00	-09	-18	10	16	59	56	8
9.	Paragraph Meaning										00	-09	-17	07	16	59	56	9
10.	Hearing Loss											29	-15	-01	-22	-06	-05	10
11.	Shape of Audiogram												09	-08	-24	-04	-02	11
12.	Age Started to School													-04	-12	-07	-06	12
13.	Deaf Relatives														-04	09	08	13
14.	Rating on Lip Reading															04	-02	14
15.	Rating on Finger Spelling																96	15
16.	Rating on Language of Signs																	16